

# WOMEN WORKERS

## SOME BASIC STATISTICS

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## INTRODUCTION

This pamphlet was originally assembled as a background paper for a conference for working women held in Boston in May 1970. It has been rewritten and expanded for publication, but its original purpose remains the same: to present the basic statistical information available about women who work.

The information has been organized around a series of questions that are relevant to the tasks facing the women's movement; both the present situation and long-term trends are surveyed for each question. In each section the data are presented in as simple and clear a form as possible; in this way, the reader can find the answer to some specific question, and new questions can arise naturally out of the basic data. The statistical information presented concerns women; the condition of women workers is related to the general situation of workers in the United States, and the pamphlet should be used with this in mind (for a good general survey, see Victoria Bonnell and Michael Reich's "Workers and the American Economy: Data on the Labor Force", published by the New England Free Press, 1969). The five sections are briefly described in the following paragraphs, along with some obvious questions raised by the data presented.

SECTION I surveys the basic facts about women in the labor force: how many women work, whether they work part-time or full-time, part-year or the year round, and which women work (age, marital status, working mothers and women heads of families). On the one hand, women are a large and increasing portion of the labor force; on the other, most working women work part-time or part of the year. What does this mean in terms of the consciousness of women, both 'in the home' (part-time or full-time, part-year or year round) and as workers? Should women be reached through their communities or on the job? The median age of women workers has been rising, and most women who work are married, living with their husbands, and contributing substantially to family income. Mothers with children under 18 years of age are entering the labor force in increasing numbers, and a large proportion of these mothers have young children below school age. What potential do the evident contradictions between this reality and the highly developed ideology of full-time homemaker/mother in the United States have for the expansion of a radical women's movement? Finally, many women are 'heads of families', as defined by U.S. government survey techniques, and many more than these earn half or more of their family's income; what meaning do these widespread phenomena, which challenge the economic and ideological bases of the nuclear family unit, have for the development of the women's movement?

SECTION II examines the kinds of jobs women hold and SECTION III provides some basic data on what working women get paid. Taken together these two sections raise the general questions of the social tracking of women into low-paid jobs. The data on particular job categories and on long-term trends show that the position of women in the different types of work varies greatly and is changing, and suggest that such factors must be taken into account in any political work done with working women.

SECTION IV documents the additional oppression of nonwhite women workers. From every point of view, nonwhite women are more oppressed than white women: a larger proportion work, they are less apt to hold full-time jobs the year round, proportionately more nonwhite mothers with children under 18 work, a larger proportion of their children are below school age, and they hold jobs that pay significantly less than jobs held by white women or by nonwhite or white men. The meaning of these fairly well-known facts for the women's movement and for the movement as a whole is already a lively debate.

SECTION V covers some of the basic data available about the participation of women in labor unions. An even smaller proportion of working women than of working men are members of labor unions; on the other hand, the proportion of union members who are women is increasing slightly. Should women form caucuses in their unions? Should they organize their own unions?

It is important to understand what it means to use data collected by the U.S. government. Bonnell and Reich give a good explanation of the many problems involved in using U.S. government statistics in their pamphlet, "Workers and the American Economy". They remind us that the U.S. government collects and publishes data for its own purposes, and that therefore much of the information we might want is often not available. In addition, the categories used in collecting and presenting the data are often deceptive (for example, the distinction between blue and white collar work is less and less clear as white collar jobs become increasingly mechanized and in many respects resemble assembly line work).

Finally, the categories used in the government data are not only deceptive, but frequently they are both misleading and offensive. For example, the category 'nonwhite' includes Blacks (about 92% of nonwhites), Orientals, and American Indians, while Puerto Ricans and Mexican-Americans are classified as 'whites'; from the point of view of the present situation in the United States, statistics using these categories inevitably obscure the real facts to some extent. In addition, to define one group (e.g. 'nonwhites') in terms of its not being another group (e.g. 'whites') is inherently insulting; other examples of unpleasant terminology in this pamphlet are 'head of family', statistics broken down 'by Color', and possibly 'women' (=wo-men as opposed to 'men'). It was felt to be impossible at this point, and using government data, to deal with these problems of inadequate categories and offensive terminology. Hopefully this pamphlet will help people to do what is necessary to get the information they need, and to do the things that have to be done.

Note: Statistics are difficult if not impossible to read through and understand; the following remarks may help.

In this pamphlet the data is frequently presented from two important and different points of view: on the one hand women can be considered with respect to men or to all persons (men and women) for a particular question; on the other hand, a subgroup of women (e.g., women who work, mothers, nonwhite women) can be considered with respect to all women, or to another subgroup of women. For example, the numbers of women in the population who work can be examined by looking at women workers as a percent of all workers (men and women), and also by looking at women workers as a percent of all women in the population. In one case the ques-

tion is: What proportion of workers are women? In the other: What proportion of women work?

A very important concept is the 'percent distribution', in which a group is broken down with respect to some characteristic into proportional parts of 100 percent, so that one can understand its internal composition. For example, of all women who work, what proportions are married, single, widowed, etc. (Chart C); or, of all women who work, what proportions work full-time or part-time, year-round or part-year (Table 3); or, of mothers who work, what proportions have children of various ages (Chart G).

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## I. WOMEN IN THE LABOR FORCE

### 1. HOW MANY WOMEN WORK?

#### a. Numbers

More women are working today in the United States than ever before. In 1969, women made up 38% of the labor force; this means that nearly two out of five workers is a woman. It is also important to examine what proportion of the female population in the United States works: by 1969, more than two out of five women were in the labor force (in contrast, more than four out of five men were in the labor force). The tendency for more women to participate in the labor force is not a fluctuation or a fad, but a permanent trend. Table 1 summarizes the data:

Table 1: Women in the Labor Force, Selected Years, 1890-1968  
(women 16 years of age and over)

Year	Number	As % of all workers	As % of woman population
1890	3,704,000	17.0	18.2
1900	4,999,000	18.1	20.0
1920	8,229,000	20.4	22.7
1930	10,396,000	21.9	23.6
1940	13,783,000	25.4	28.9
1950	17,882,000	29.1	33.0
1960	22,985,000	33.3	37.4
1968	29,204,000	37.1	41.6
1969	30,512,000	37.8	42.7

If only women in the principal working age group (18 to 64 years of age) are considered, the rising proportion of women in the labor force reveals itself even more clearly: by 1968, nearly one out of two workers were women in this age group (table 2).

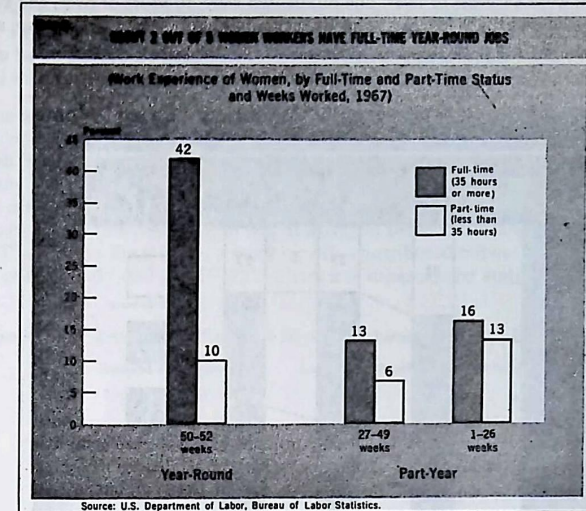
Table 2: Labor Force Participation Rates of Women 18 to 64 Years of Age, Selected Years, 1947-68<sup>1</sup>

Year	% of all workers
1947	34.8
1950	37.2
1954	38.6
1958	41.8
1962	43.5
1966	46.5
1968	48.2

#### b. Part-time and part-year work<sup>2</sup>

Not all women work full-time (35 hours or more a week) or the year round (50 to 52 weeks). About three out of five women who worked in 1967 held part-time or part-year jobs (by contrast, 70% of men with work experience in 1967 were full-time year-round workers). Chart A summarizes the experience of women in 1967 with respect to part-time and part-year work:

Chart A



There has been a trend for more women to work full-time the year round. Table 3 suggests that the proportion of working women who work part-time is remaining roughly stable (about 10% the year round, and about 20% part-year), but that a greater percentage of women are tending now to work full-time the year round.

Table 3: Work Experience of Women, 1950, 1960, 1967 (percent distribution)

Work experience	1950	1960	1967
Total	100.0	100.0	100.0
Year-round (50-52 weeks)			
Full-time	36.8	36.9	42.1
Part-time	8.2	10.0	9.9
Part-year:			
27-49 weeks			
Full-time	17.9	14.6	13.0
Part-time	5.1	6.6	6.2
1-26 weeks			
Full-time	18.7	16.0	15.4
Part-time	13.2	15.8	13.3

### 2. WHO ARE THE WOMEN WHO WORK?

#### a. Age

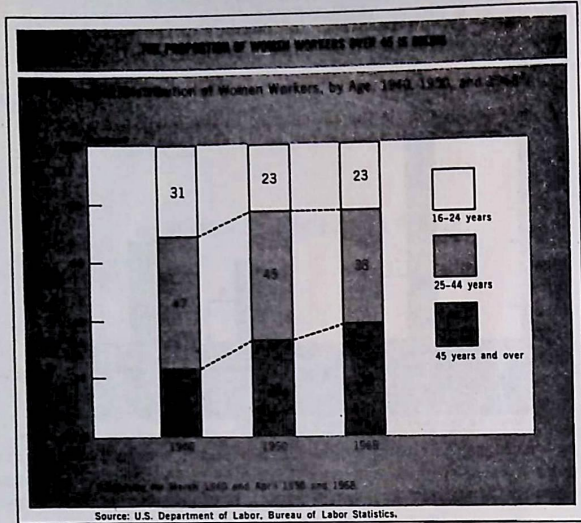
The median age (half above/half below) of women workers has been rising (table 4). Between 1960 and 1968, large numbers of women from the generation of war and postwar babies entered the labor force; their numbers counterbalanced the two- and three-fold increase in the number of women over 45 entering the labor force, and thus in table 4 the median age remains about the same for these years.

Table 4: Median Age of Women Workers, Selected Years, 1900-1968

Year	Median age
1900	26
1940	32
1945	34
1950	37
1960	41
1968	40

In 1940, about two out of five women workers were 35 years of age or over; in 1968 almost three out of five women in the labor force were 35 years or over, and two out of five were 45 or over. Chart B shows the changes in labor force participation of women by age group, and illustrates the increasing participation of mature women

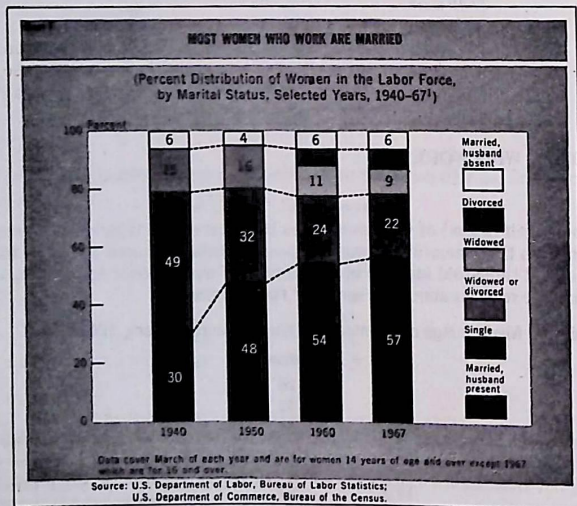
Chart B



**b. Marital status**

Most women who work are married. Almost three out of five women workers are married and living with their husbands; one out of five is single; of the remaining one out of five women workers, three-quarters (or about 15% of all women workers) are widowed or divorced, and one-quarter (or about 5% of all women workers) are married and not living with their husbands. The percentage of women workers who are married and living with their husbands has increased substantially (chart C).

Chart C



Another way of looking at the marital status of working women is to consider the increasing proportion of married women who work. In 1969, 39.6% of married women who lived with their husbands worked, while in 1940 only 14.7% of this group had worked. By contrast, the proportion of single women and of married women with husbands absent who worked in 1940 and in 1969 has remained roughly the same, at about one in two.<sup>3</sup>

Married women who work make an important, and not marginal, contribution to family income. For example, in 1966 dollars, an income of \$7,000 was considered by the United States government to be a 'modest but adequate income for an urban family of four.'<sup>4</sup> In 1966, about 60% of the husbands of working wives had incomes of less than \$7,000; in many cases the income of the working wife kept the family above the \$7,000 line. In general, where the husband earned between \$3,000 and \$10,000, about two out of five of the wives worked; the highest labor force participation rate of wives (42.6%) was precisely in those families where the husband's income was between \$5,000 and \$7,000. On the average, a working wife contributed between 16% and 28% of the income of families with total income of \$5,000 to \$15,000. These and other similar statistics are summarized in tables 5 and 6.<sup>5</sup>

Table 5: Labor Force Participation Rates of Wives (Husbands Present), by Income of Husbands in 1966

Income of husband	Labor force participation rate of wives
Under \$1,000	37.4
\$ 1,000 to \$ 1,999	27.0
\$ 2,000 to \$ 2,999	33.0
\$ 3,000 to \$ 4,999	41.4
\$ 5,000 to \$ 6,999	42.6
\$ 7,000 to \$ 9,999	37.9
\$10,000 and over	28.8

Table 6: Median Percent of Family Income Accounted for by Wives' Earnings in 1966

Family income	Median percent
Under \$2,000	6.0
\$ 2,000 to \$ 2,999	12.2
\$ 3,000 to \$ 4,999	14.4
\$ 5,000 to \$ 6,999	15.8
\$ 7,000 to \$ 9,999	23.0
\$10,000 to \$14,999	28.1
\$15,000 and over	22.9

**c. Working mothers and women heads of families**

In 1967 there were 10.6 million mothers with children under 18 years of age in the labor force; in other words, 38.2% (nearly two out of five) of all mothers with children under 18 worked. For three out of five of these working mothers, their children were of school age, but substantial numbers of women with children under 6 also worked (table 7).

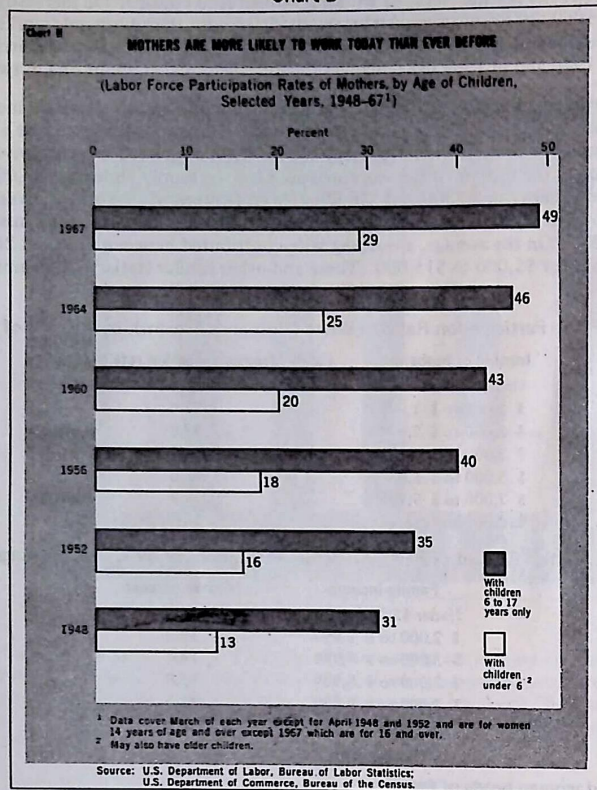
Table 7: Mothers in the Labor Force by Age of Children, 1967 (mothers 16 years of age and over)

Age of children	% in labor force	% distribution
All mothers with children under 18	38.2	100.0
Mothers with children 6 to 17 only	48.6	60.9
Mothers with children 3 to 5 (none under 3)	34.5	18.3
Mothers with children under 3	25.0	20.8

Mothers with children under 18 years of age have been entering the labor force at a rapid rate. In 1940, 8.6% of mothers with children under 18 worked; by 1967, 38.2% were in the labor force.<sup>6</sup> Chart D (next page) shows the trends since 1948.

The 'head of family' is defined in publications of the Bureau of the Census as follows: 'One person in each family was designated as the head. The head of a family is usually the person regarded as the head by members of the family. Women are not classified as heads if their husbands are resident members of the family at the time of the survey.' In 1967, over one out of ten families had a woman as the head (5.2 million families); almost half the women

Chart D



family heads were widows, and almost two-fifths were separated or divorced. More than half the women family heads were in the labor force in 1967 (in contrast to only 37% of wives living with their husbands); of the working women family heads, more than half were the sole breadwinners for their families.<sup>7</sup>

## II. WHAT KINDS OF JOBS DO WOMEN HOLD?<sup>8</sup>

Women and men do not hold the same kinds of jobs. Chart E (next page) shows the differences very clearly, from two points of view: the numbers of women in a particular occupation group compared to the numbers of men in that same group, and the distribution of women workers in the different kinds of jobs (these two ways of examining the types of jobs held by women will be discussed in more detail below).

Women are a large proportion of the total number of workers in the service and white collar categories. For example, in 1968 women made up 65% of all workers in service jobs and 46% of those in white collar jobs, but they were only 17% of all workers in blue collar jobs and 15% of those in farm work.<sup>9</sup>

It is also important to consider the distribution of women workers in the various kinds of jobs. Most women who work hold white collar jobs (59%, or about three out of five women workers). About one out of six women workers (17%) are blue collar workers, over one out of five (22%) are service workers, and a small number (2%) are farm workers (comparable figures for men are: 40% white collar, 47% blue collar, 7% service, and 6% farm<sup>10</sup>).

These large-scale percentages are somewhat misleading, and it is more interesting to examine the particular jobs held by women in each of the major categories of work. Table 8 (next page) supplies the detailed data.

Chart E

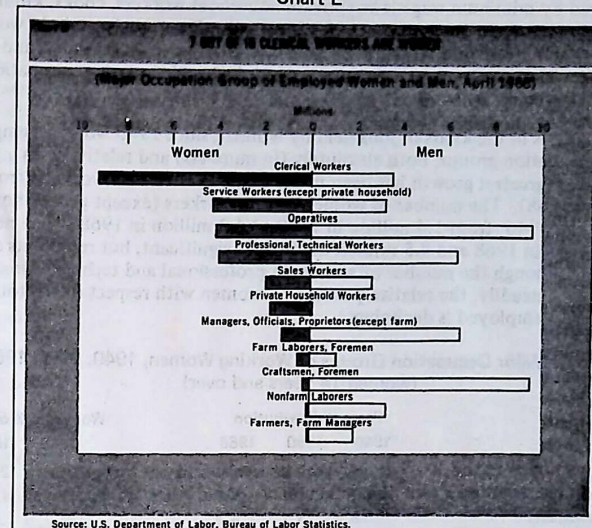


Table 8: Major Occupation Groups of Working Women, 1969 (women 16 years of age and over)

Occupation	Women employees (,000)	% distribution	Women as % of total employed
<b>Total</b>	<b>29,084</b>	<b>100.0</b>	<b>37.3</b>
<b>White collar workers</b>	<b>17,270</b>	<b>59.3</b>	
Professional, technical and kindred workers	4,018	13.8	37.3
Managers, officials, and proprietors	1,260	4.3	15.8
Clerical and kindred workers	9,975	34.3	74.5
Sales workers	2,017	6.9	43.0
<b>Blue collar workers</b>	<b>4,974</b>	<b>17.1</b>	
Craftsmen, foremen	339	1.2	3.3
Operatives and kindred workers	4,489	15.4	31.2
Nonfarm laborers	146	.5	4.0
<b>Service workers</b>	<b>6,271</b>	<b>21.6</b>	
Private household workers	1,592	5.5	97.6
Other service workers	4,679	16.1	59.3
<b>Farm workers</b>	<b>568</b>	<b>2.0</b>	
Farmers, farm managers	79	.3	4.3
Farm laborers, foremen	489	1.7	33.8

Table 8 shows that among the different white collar occupations, women are concentrated in the low-paid clerical category; one out of every three women who work is a clerical worker, and three out of four clerical workers are women. Although many women work as professional and technical workers, they tend to hold relatively low-paying, low-status jobs (for example, teachers); moreover, the percentage of women employed in this category is falling steadily (see table 9 below).

The percentage of women working in blue collar occupations is relatively small (17.1% in 1969), and is fluctuating but on the whole declining in relative importance (see table 9 below). However, virtually all of these women work as operatives and kindred workers, that is, as the lower-level 'unskilled' factory workers who constitute more than one-half of blue-collar workers.<sup>11</sup> This means that three out of ten operatives are women, and this proportion is slowly growing (table 9).

Women constitute well over half the workers in the service occupations. These are usually low-paying non-unionized jobs, generally not covered by minimum wage laws (private household workers, cooks, kitchen workers, waitresses, hospital attendants, practical nurses, charwomen, etc.). Essentially all private household workers (e.g. maids) are women; the number of private household workers has remained substantially constant, and thus their relative importance has decreased. On the other hand, the number of jobs in other service occupations has increased, and most of these jobs have been taken by women.

Table 9 summarizes the trends in the kinds of jobs held by women; since 1940 women's employment has expanded in nearly all the major occupation groups, both absolutely (in numbers) and relatively (as a proportion of total number of employees). The greatest growth has been in the number of clerical workers (from 2.5 million women in 1940, to 9.3 million in 1968). The number of women service workers (except private household workers) has also more than tripled since 1940 (from 1.4 million in 1940 to 4.3 million in 1968). The numbers of women working as operatives (4.1 million in 1968 and 4.5 million in 1969) is significant, but represents a growth of only about 28% since 1950. Finally, although the number of women in professional and technical work is also large (4.0 million in 1968) and has grown steadily, the relative position of women with respect to the total number of professional and technical workers employed is declining.

Table 9: Major Occupation Groups of Working Women, 1940, 1950, 1968  
(women 14 years and over)

Occupation	Percent distribution			Women as % of total employed		
	1940	1950	1968	1940	1950	1968
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>25.9</i>	<i>29.3</i>	<i>36.6</i>
Professional and technical workers	13.2	10.8	14.4	45.4	41.8	38.6
Managers, officials, etc.	3.8	5.5	4.3	11.7	14.8	15.7
Clerical workers, etc.	21.2	26.4	33.3	52.6	59.3	72.6
Sales workers	7.0	8.8	6.8	27.9	39.0	39.7
Craftsmen, foremen	.9	1.1	1.1	2.1	2.4	3.3
Operatives	18.4	18.7	14.8	25.7	26.9	29.9
Nonfarm laborers	.8	.4	.4	3.2	2.2	3.5
Private household	17.6	10.3	7.2	93.8	92.1	97.6
Other service workers	11.3	12.6	15.6	40.1	45.4	57.0
Farmers, farm managers	5.8	1.5	.3	8.0	5.5	4.1
Farm laborers, foremen		3.9	1.7		27.4	28.0

Table 10 (next page) gives examples of specific occupations in which 100,000 or more women were employed in 1960, together with the percentages representing the proportion of the total number of persons employed in the specific occupation who are women. The table shows that women are concentrated in a relatively small number of occupations. About one-third of all women working in 1960 were in seven occupations: secretaries, saleswomen in retail trade, general private household workers, teachers in elementary schools, bookkeepers, waitresses, and professional nurses. About two-thirds of the 21.2 million women working in 1960 were in 36 individual occupations (those listed in table 10).

Table 10: Detailed Occupations in which 100,000 or more Women were Employed, 1960  
(women 14 years of age and over)

Occupation	Number of women workers	Women as % of total employed
<i>White collar workers</i>		
Teachers (elementary school)	860,413	86
Nurses (professional)	567,884	98
Teachers (secondary school)	243,452	47
Musicians and music teachers	109,638	57
Secretaries	1,423,352	97
Bookkeepers	764,054	84
Typists	496,735	95
Cashiers	367,954	78
Telephone operators	341,797	96
Stenographers	258,554	96
Office machine operators	227,849	74
Receptionists	131,142	98
File clerks	112,323	86
Saleswomen (retail trade)	1,397,364	54
<i>Blue collar workers</i>		
Sewers and stitchers	534,258	94
Laundry and dry cleaning operatives	277,396	72
Assemblers	270,769	44
Operatives (apparel, accessories)	270,619	75
Checkers, examiners, inspectors	215,066	45
Operatives (electrical machinery, equipment, supplies)	138,001	48
Operatives (yarn, thread, fabric mills)	103,399	44
<i>Service workers</i>		
Private household workers	1,162,683	96
Waitresses	714,827	87
Cooks (except private household)	361,772	64
Babysitters	319,735	98
Attendants (hospitals, etc.)	288,268	74
Hairdressers and cosmetologists	267,050	89
Packers and wrappers	262,935	60
Practical nurses	197,115	96
Kitchen workers (except private household)	179,796	59
Chambermaids, maids (except private household)	162,433	98
Housekeepers (private household)	143,290	99
Charwomen and cleaners	122,728	68
Housekeepers and stewardesses (except private household)	117,693	81
Dressmakers and seamstresses (except factory)	115,252	97
Counter and fountain workers	112,547	71

### III. WHAT DO WOMEN WORKERS GET PAID?

Women earn considerably less than men. This can be seen immediately by examining the median wage or salary incomes of women and men. In 1968, the median wage or salary income of a woman working full-time and the year round was \$4,457. The comparable income of a man in 1968 was \$7,664. In other words, in 1968 a woman working full-time and year-round tended to be paid about 58% of what a man who worked full-time and year-round was paid. Table 11 (next page) shows that this 'earnings gap' has been steadily increasing.

Table 12 (next page) shows the earnings gaps in each one of the major occupation groups. The gaps are especially large for two groups in which increasing numbers of women work — sales workers and service workers.

Table 11: Wage or Salary Income of Full-time Year-round Workers, by Sex, 1955-1968

Year	Median income		Women's median income as percent of men's
	Women	Men	
1955	\$2,719	\$4,252	63.9
1956	2,827	4,466	63.3
1957	3,008	4,713	63.8
1958	3,102	4,927	63.0
1959	3,193	5,209	61.3
1960	3,293	5,417	60.8
1961	3,351	5,644	59.4
1962	3,446	5,794	59.5
1963	3,561	5,978	59.6
1964	3,690	6,195	59.6
1965	3,823	6,375	60.0
1966	3,973	6,848	58.0
1967	4,150	7,182	57.8
1968	4,457	7,664	58.2

Table 12: Median Wage or Salary Income of Full-time Year-round Workers, by Sex and Selected Major Occupation Group, 1968

Major occupation group	Median income		Women's median income as percent of men's
	Women	Men	
Total	\$4,457	\$7,664	58.2
Professional, technical and kindred workers	6,691	10,151	65.9
Managers, officials and proprietors	5,635	10,340	54.5
Clerical and kindred workers	4,789	7,351	65.1
Sales workers	3,461	8,549	40.5
Craftsmen, foremen	4,625	7,978	58.0
Operatives and kindred workers	3,991	6,738	59.2
Service workers (except private household)	3,332	6,058	55.0

Table 13 shows the trends in the earnings gap in the major occupation groups. Except for women professional and technical workers (whose position is worsening in other ways; see table 9), the earnings gap stayed about the same or increased in every occupation group. The greatest deterioration occurred in the incomes of clerical workers and operatives, two groups whose median income as a percentage of men's had been relatively high.

Table 13: Women's Median Wage or Salary Income as Percent of Men's, by Selected Major Occupation Group, 1956-1966 (year-round full-time workers 14 years of age and over)

Major occupation group	1956	1958	1960	1962	1964	1966
Professional, technical and kindred workers	62.4	63.7	64.0	66.1	64.3	65.1
Managers, officials and proprietors	59.1	58.6	57.6	57.8	55.5	54.0
Clerical and kindred workers	71.7	70.0	68.3	68.6	66.2	66.5
Sales workers	41.8	43.8	42.2	43.6	40.4	41.0
Operatives and kindred workers	62.1	61.5	59.7	59.4	57.8	55.9
Service workers (except private household)	55.4	53.2	59.1	51.8	53.7	55.4

Finally, it should be remembered that these are wage or salary incomes for women working full-time and the year round, and only about 42% of working women work full-time and the year round (table 3). Table 14 shows the median money earnings of women in 1967 according to work experience: although a woman working full-time the year round received \$4,150, the woman who worked part-time received median money earnings of only \$747, and only \$1,404 if she worked part-time the year round.<sup>12</sup>

Table 14: Median Money Earnings of Women Workers in 1967, by Work Experience (women 14 years and over)

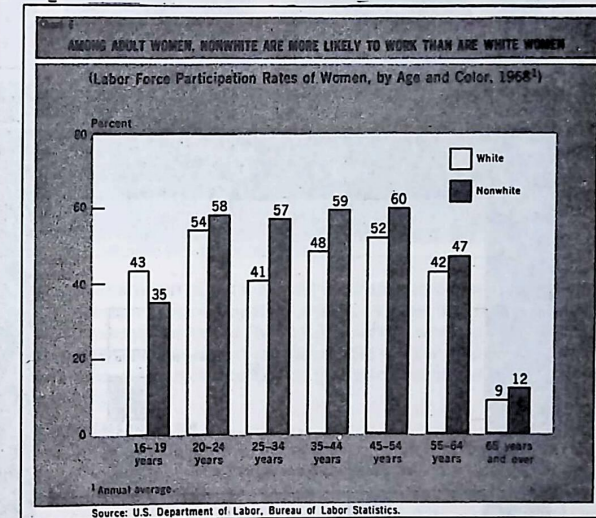
Work experience	Women with full-time jobs	Women with part-time jobs
Total	\$3,296	\$ 747
50 to 52 weeks	4,150	1,404
40 to 49 weeks	3,140	1,186
27 to 39 weeks	2,162	950
14 to 26 weeks	1,348	583
13 weeks or less	470	326

#### IV. NONWHITE WOMEN WORKERS<sup>13</sup>

##### 1. NUMBERS AND AGE

In 1968, 3.8 million nonwhite women were in the labor force; they made up about 13% of all women workers, and about 43% of all nonwhite workers. In virtually all age groups a significantly larger proportion of nonwhite women were in the labor force than of white women (chart F). Nonwhite women workers are somewhat younger than white women workers; in 1968 the median age of nonwhite women workers was about 38 years.<sup>14</sup>

Chart F



There has been a steady increase in the participation of nonwhite women in the labor force. In the principal working age group (18 to 64 years of age), the rate has risen from 50.7% in 1954 to 56.1% in 1968, as compared with the rise from 38.6% to 48.2% for all women in this age group between 1954 and 1968.<sup>15</sup>

##### 2. PART-TIME AND PART-YEAR WORK<sup>16</sup>

A somewhat smaller percentage of nonwhite women than of white women work at full-time jobs the year round: in 1967, 42.4% of working white women but only 40.2% of working nonwhite women held full-time year-round jobs. Similarly, more nonwhite women who find full-time jobs hold them for only part of the year: in 1967, 31.5% of nonwhite women, but only 27.9% of white women, worked at full-time jobs on part-year schedules. About the same proportion of nonwhite and white women workers held part-time jobs (in 1967, 28.3% of nonwhite and 29.6% of white women workers).

### 3. NONWHITE WORKING MOTHERS AND HEADS OF FAMILIES

Nonwhite working mothers with children under 18 years of age totalled 1.1 million or 12% of all working mothers in 1967. Proportionately more nonwhite mothers work than white mothers (table 15); in addition, a larger proportion of nonwhite mothers who work have children below school age (chart G).

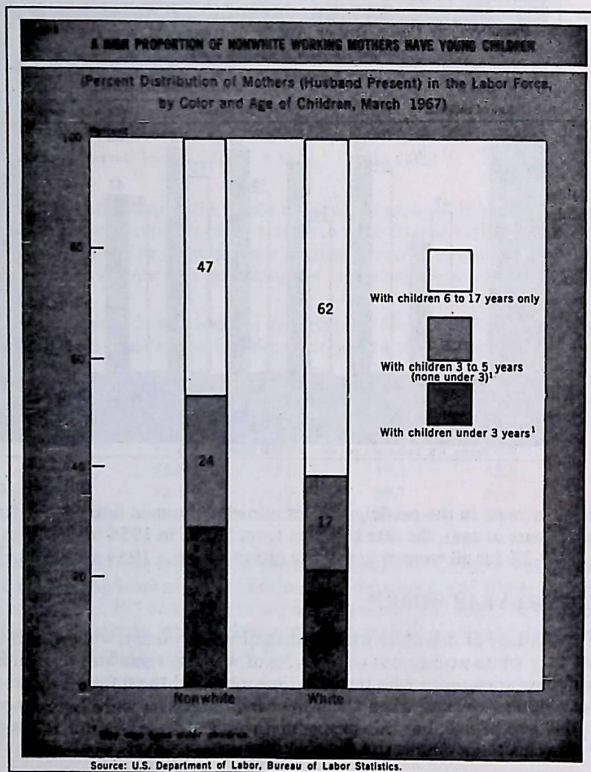
Table 15  
LABOR FORCE PARTICIPATION RATES OF MOTHERS (HUSBAND PRESENT), BY COLOR AND BY AGE OF CHILDREN, MARCH 1967  
(Mothers 16 years of age and over)

Age of children	Mothers in the labor force		Nonwhite as percent of all working mothers
	Nonwhite	White	
	NUMBER		
Total	1,053,000	7,697,000	12.0
	PERCENT		
Children 6 to 17 years only	55.2	44.2	9.3
Children under 6 years <sup>1</sup>	42.1	24.8	16.1
None under 3 years	51.8	29.6	16.2
Some under 3 years	36.5	21.7	16.3

<sup>1</sup> Also may have older children.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 94.

Chart G



In 1967 there were 1.1 million women family heads who were nonwhite; they made up 22% of all women family heads. In other words more than one in every five women family heads is nonwhite.<sup>17</sup>

### 4. WHAT KINDS OF JOBS DO NONWHITE WOMEN HOLD?

Nonwhite women work at quite different kinds of jobs than do white women (chart H). In 1968, about one in two nonwhite women were in service work, and one in three in white collar work; in contrast, less than one in five white women were in service work, but almost two in three in white collar work. Approximately the same proportions of both nonwhite and white women were in blue collar and farm work.

Chart H

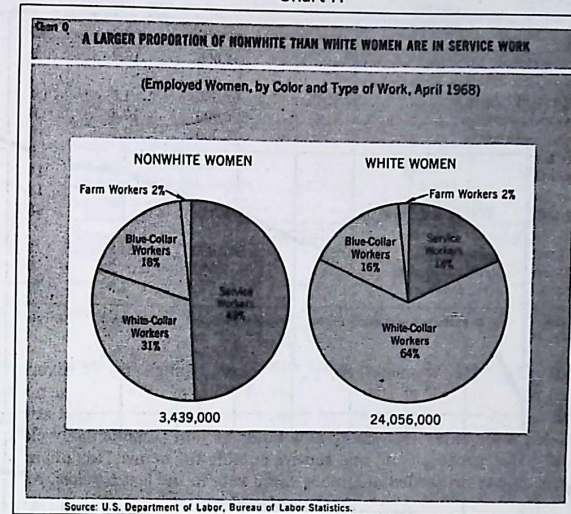


Table 16 provides a more detailed breakdown of the jobs held by nonwhite women in 1968, and shows that nonwhite women are concentrated in certain major occupation groups. Almost half (48.6%) of the women private household workers (e.g. maids) and about one out of five (19.3%) service workers who are women are nonwhite. One in four (24.4%) nonwhite women workers is a private household worker, and another one in four (24.2%) works in some other service occupation; the next largest occupation group for employed nonwhite women is clerical work (17.4%), followed by operatives (16.9%).

### 5. WHAT DO NONWHITE WOMEN WORKERS GET PAID?

Nonwhite working women are paid significantly less than all other workers. The median wage or salary income of a nonwhite woman working full-time the year round in 1966 (\$2,949) was 71.0% of the comparable median income of white women (\$4,152), 65.1% of the comparable median income of nonwhite men (\$4,528), and 41.0% of the comparable median income of white men (\$7,164).<sup>18</sup>

The gap between what nonwhite and white workers are paid has narrowed slightly, and more for women than for men. In 1956 the median wage or salary income of nonwhite women working full-time the year round was 55.3% of the comparable income of white women; in 1966 it had risen to 71.0%. In contrast, nonwhite men received 61.8% of what white men were paid in wages or salary in 1956, but the rate had risen only to 63.2% in 1966.<sup>19</sup> However, the slight narrowing of the earnings gap between nonwhite and white women workers is of small significance next to the large and increasing gap between what women and men are paid (table 11, above; chart I, next page).

Once again it should be remembered that the income just discussed are for persons working full-time and year-round. Nonwhite women tend somewhat more than white women to work part-year and part-time. Table 17 shows the median money earnings of nonwhite women workers in 1967 according to work experience; comparison of these figures with the same statistics for all women (table 14, above) reveals very clearly the extreme exploitation of nonwhite women.



Chart I

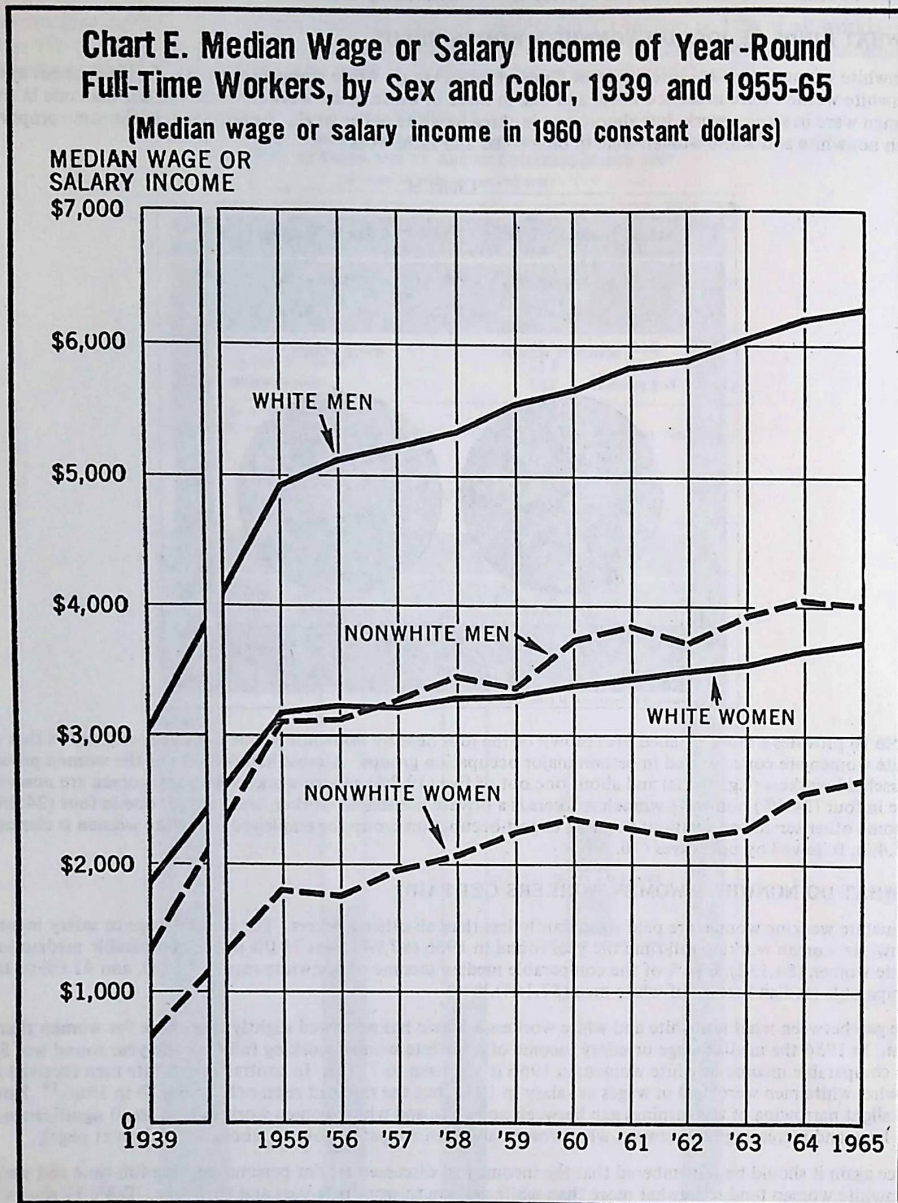


Table 16

MAJOR OCCUPATION GROUPS OF EMPLOYED NONWHITE WOMEN, APRIL 1968  
(Women 16 years of age and over)

Major occupation group	Number	Percent distribution	As percent of total employed women
Total	3,439,000	100.0	12.5
Professional, technical workers	351,000	10.2	8.7
Managers, officials, proprietors (except farm)	52,000	1.5	4.3
Clerical workers	598,000	17.4	6.4
Sales workers	72,000	2.1	3.8
Craftsmen, foremen	28,000	.8	9.0
Operatives	581,000	16.9	14.0
Nonfarm laborers	17,000	.5	14.7
Private household workers	839,000	24.4	48.6
Service workers (except private household)	832,000	24.2	19.3
Farmers, farm managers	7,000	.2	8.5
Farm laborers, foremen	65,000	1.9	14.2

Source: U.S. Department of Labor, Bureau of Labor Statistics: Employment and Earnings, May 1968.

Table 17: Median Money Earnings of Nonwhite Women Workers in 1967, by Work Experience (women 14 years and over)

Work experience	Nonwhite women with full-time jobs	Nonwhite women with part-time jobs
Total	\$2,341	\$ 575
50 to 52 weeks	3,194	930
40 to 49 weeks	2,349	837
27 to 39 weeks	1,534	600
14 to 26 weeks	1,234	464
13 weeks or less	398	317

#### V. WOMEN IN LABOR UNIONS

Early nineteenth century unions in the United States were organized as sexually segregated locals. After the Civil War this separation gradually broke down, and today there are no separate unions for women (a few unions have no women members: those for bricklayers, fire fighters, locomotive engineers, and plasterers).

The total number of union members (women and men) has remained about constant since the mid-fifties; because the labor force is increasing, this means that the proportion of workers who are unionized is falling. Thus 33.2% of employees in non-agricultural establishments were members of unions in 1955, 31.4% in 1960, and only 28.0% in 1966. Blue collar unionists comprise about 85% of all union members; white collar workers make up the other 15%; service workers remain largely unorganized.<sup>20</sup>

Women and men do not participate in labor unions to the same extent. In 1966 only about one in seven women in the female labor force were union members, as compared to the more than one in four men in the male labor force who belonged to unions.<sup>21</sup> More than four out of five union members are men; however, the proportion of women union members is increasing slightly (table 18).

Table 18: Women as Members of National and International Unions, 1958-1966

Year	Number	Percent of all members
1958	3,274,000	18.2
1960	3,304,000	18.3
1962	3,272,000	18.6
1964	3,413,000	19.0
1966	3,689,000	19.3

Women in blue collar jobs probably make up the majority of women union members.

About 18% of all women union members in 1966 were in two unions in the apparel industry (International Ladies' Garment Workers' Union and Amalgamated Clothing Workers of America). Other unions with a sizable number of women members are the International Brotherhood of Electrical Workers, the Retail Clerks International Association, and the Hotel and Restaurant Employees and Bartenders International Union. Relatively large numbers of women are members of several big industrial and transportation unions, although women represent only a small portion of their total membership; this group of unions includes automobile and machinery manufacturing. Table 19 summarizes the information on membership of women in unions in 1966.

Table 19  
WOMEN MEMBERS OF LABOR UNIONS,<sup>1</sup> 1966

Union	Approximate number of women
<b>American Federation of Labor and Congress of Industrial Organizations:</b>	
International Ladies' Garment Workers' Union .....	364,181
Amalgamated Clothing Workers of America .....	286,500
International Brotherhood of Electrical Workers .....	262,500
Retail Clerks International Association .....	250,167
Hotel and Restaurant Employees and Bartenders International Union .....	202,488
Communications Workers of America .....	176,614
International Union, United Automobile, Aerospace and Agricultural Implement Workers of America .....	168,324
International Union of Electrical, Radio and Machine Workers .....	112,000
Building Service Employees' International Union .....	97,580
International Association of Machinists and Aerospace Workers .....	83,616
Textile Workers Union of America .....	72,800
United Federation of Postal Clerks .....	57,258
Brotherhood of Railway, Airline and Steamship Clerks, Freight Handlers, Express and Station Employees .....	54,000
American Federation of Government Employees .....	50,000
Office and Professional Employees International Union .....	49,000
Amalgamated Meat Cutters and Butcher Workmen of North America .....	45,898
International Brotherhood of Bookbinders .....	37,056
United Packinghouse, Food and Allied Workers .....	28,350
United Shoe Workers of America .....	27,090
Retail, Wholesale and Department Store Union .....	( <sup>2</sup> )
American Federation of Teachers .....	( <sup>2</sup> )
United Rubber, Cork, Linoleum and Plastic Workers of America .....	( <sup>2</sup> )
United Steelworkers of America .....	( <sup>2</sup> )
<b>Unaffiliated:</b>	
Alliance of Independent Telephone Unions .....	56,250
United Electrical, Radio and Machine Workers of America .....	41,750
International Union of District 50, United Mine Workers of America .....	27,840
International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America .....	( <sup>2</sup> )

<sup>1</sup> Unions reporting 25,000 or more women members.

<sup>2</sup> Data not reported, but number of women believed to be significant.

Source: U.S. Department of Labor, Bureau of Labor Statistics: "Directory of National and International Labor Unions in the United States, 1967." Bull. 1596. 1968.

## NOTES

1. According to the *1969 Handbook on Women Workers*, U.S. Department of Labor, Women's Bureau, Bulletin 294, p. 22, data is not available for computing labor force participation rates of women 18 to 64 years of age prior to 1947. The *1969 Handbook* is the single best source for information on women in the United States; anything not specifically footnoted in this pamphlet can be found in it.

2. The important questions of absenteeism, labor turnover, and part-time and part-year work cannot be examined here. All agree that they cannot be separated from the problems of the lack of adequate daycare and other socialized forms of family maintenance. Government publications include: *Facts About Women's Absenteeism and Labor Turnover*, U.S. Department of Labor, Women's Bureau, August 1969; *Women's Part-Time and Part-Year Employment Patterns in the United States*, U.S. Department of Labor, Women's Bureau, January 1966 (based on the *1965 Handbook on Women Workers*); *1969 Handbook*, pp. 43-47, 55-67. Two excellent radical critiques are: I. Winkler, *Women Workers: The Forgotten Third of the Working Class*, an International Socialists publication (co-published by the New England Free Press), and M.P. Goldberg, "The Economic Exploitation of Women", *The Review of Radical Political Economics*, vol. II, 1 (Spring 1970), pp. 35-47.

3. For more detailed statistics on the trends through 1967, see the *1969 Handbook*, pp. 26-27; the data for 1969 is given in *Background Facts on Women Workers in the United States*, U.S. Department of Labor, Women's Bureau, 1970, table 4.

4. *Working Wives—Their Contribution to Family Income*, U.S. Department of Labor, Women's Bureau, November 1968, p. 1.

5. For more detailed presentation and analysis of these complicated and important statistics, see the pamphlet cited in note 4 above, or the *1969 Handbook*, pp. 32-36. According to *Women Workers Today*, U.S. Department of Labor, Women's Bureau, June 1970, p. 4, 46% (cf. 42.6% in 1966) of the wives of husbands earning between \$5,000 and \$7,000 now work, and it is likely that many of the percentages in tables 5 and 6 have now increased.

6. For these figures, and more details, see *1969 Handbook*, pp. 40-41 and table 17. Some more recent data on working mothers can be found in *Background Facts on Women Workers in the United States* (cited above in note 3) and in *Women Workers Today* (cited in note 5).

7. *1969 Handbook*, pp. 29-32. More recent data is briefly surveyed in *Background Facts on Women Workers in the United States* (cited above in note 3), p. 2; as might be expected, more women than ever are heads of families although I have not found easily accessible data on long-term trends.

8. For a fine discussion of the relationship of the various types of social tracking (e.g. education) to the kinds of jobs held by women, see Winkler, *Women Workers* (cited above in note 2), pp. 5-9.

9. Percentages calculated from *1969 Handbook*, p. 88, table 37; for more complete figures, including the trends since 1958, see V. Bonnell and M. Reich, *Workers and the American Economy: Data on the Labor Force*, New England Free Press, 1969, table 20.

10. *1969 Handbook*, p. 88, table 37.

11. For the occupational structure of the blue collar labor force, see Bonnell and Reich, *Workers and the American Economy* (cited above in note 9), p. 6 and table 9.

12. A frequently cited figure is the "earnings gap" between all working women and all working men. For example, in 1966 the median wage or salary income of all working women was \$2,149 and that of all men was \$5,693; thus in 1966 the median wage or salary income of all women could be said to be 37.7% of that of all men (calculated from the *1969 Handbook*, p. 132, table 58; for comparable statistics by major occupation group, see *Background Facts on Women Workers in the United States*, cited above in note 3, table 16). The problem with this type of comparison is that by using the category of all working women or men it obscures the difference in the proportions of women and of men who work part-time or part-year; in addition, it treats part-time and part-year workers as if a "natural" salary period is a year. In order to understand the question of the earnings gaps between all women and all men, one should probably break the statistics down into more subtle categories (for example, separating full-time year-round workers from other workers).

13. In general it was difficult to find easily accessible data on long-term trends for this section on nonwhite women workers. As for all women workers, one can guess that the general trend for nonwhite women workers is for more to work, with on the whole greater exploitation than ever before. However, for each particular characteristic it would be necessary to do a detailed study in order to determine whether the gap between nonwhite and white women is decreasing or increasing.

14. *1969 Handbook*, p. 21.

15. For more detailed statistics on this trend, see the *1969 Handbook*, pp. 21-23 and table 6; data is not available before 1954.

16. *1969 Handbook*, pp. 62-63 and table 28.

17. *1969 Handbook*, p. 29.

18. *1969 Handbook*, pp. 136-137, table 67, and calculations.

19. For more detailed statistics on these trends, see the *1969 Handbook*, p. 137, table 67.

20. Bonnell and Reich, *Workers and the American Economy* (cited above in note 9), pp. 21-22 and table 33.

21. *1969 Handbook*, p. 82.

## SOURCES FOR TABLES AND CHARTS

1. *1969 Handbook on Women Workers*, U.S. Department of Labor, Women's Bureau, Bulletin 294, p. 10, table 1, and *Background Facts on Women Workers in the United States*, U.S. Department of Labor, Women's Bureau, 1970, table 1.
2. *1969 Handbook*, p. 22, table 6.
3. *1969 Handbook*, p. 57, table 23.
4. *1969 Handbook*, p. 16.
5. *1969 Handbook*, p. 33, table 12.
6. *1969 Handbook*, p. 35, table 14.
7. *1969 Handbook*, p. 39, table 16.
8. *Background Facts on Women Workers in the United States*, table 9.
9. *1969 Handbook*, p. 92, table 40.
10. *1969 Handbook*, p. 96, table 41.
11. *Fact Sheet on the Earnings Gap*, U.S. Department of Labor, Women's Bureau, February 1970. p. 1.
12. *Fact Sheet on the Earnings Gap*, p. 2 (and for total, p. 1); *Background Facts on Women Workers in the United States*, table 16 (for Craftsmen, foremen, etc.)
13. *1969 Handbook*, p. 135, table 59.
14. *Income in 1967 of Persons in the United States*, U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 60, table 11.
15. *1969 Handbook*, p. 43, table 18.
16. *1969 Handbook*, p. 106, table 45.
17. Same as table 14.
18. *Directory of National and International Labor Unions in the United States, 1967*, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 1596, p. 60.
19. *1969 Handbook*, p. 83, table 36.

Note: Most of the tables have been reorganized in order to shorten and simplify the data, and thus make it easier to understand.

- A. *1969 Handbook*, p. 56, chart K
- B. *1969 Handbook*, p. 20, chart D.
- C. *1969 Handbook*, p. 24, chart F.
- D. *1969 Handbook*, p. 41, chart H.
- E. *1969 Handbook*, p. 93, chart N.
- F. *1969 Handbook*, p. 21, chart E.
- G. *1969 Handbook*, p. 44, chart I.
- H. *1969 Handbook*, p. 105, chart O.
- I. *Negro Women in the Population and in the Labor Force*, U.S. Department of Labor, December 1967, chart E.



## The Intrafamily Allocation of Time: The Value of the Housewives' Time

By REUBEN GRONAU\*

In the new approach to consumption theory, the consumption activity is regarded as a production process in which time and goods are combined to produce utility. This new theory has revived interest in the family as the basic consumption unit.<sup>1</sup> While classical theory regarded "household" as synonymous with "individual," the new approach came to recognize that the members of a family each play a different role in the production of utility. Various authors<sup>2</sup> suggested that the classical dichotomy of "work in the market" versus "leisure" may serve as a good approximation of the role the husband plays in the production activity of the household but does gross injustice to the wife. To call the whole of the time spent by the wife outside the market sector "leisure" is to overlook the production activities she engages in at home. These activities are better termed work at home,

and the wife's allocation of time should therefore be analyzed in terms of a three-way division of work in the market, work at home, and leisure.

Recently, there have been some attempts to formalize the family decision-making process and to analyze the factors determining the intrafamily allocation of time and goods (Stuart Altman and Robert Barro, Reuben Gronau (1970b), Haim Ofek, James Smith). However, most of these attempts were based on a specific formulation of the form of the family utility function,<sup>3</sup> so that the validity of their results depends on the mathematical form used. A more serious limitation of most of these models (Altman and Barro, Ofek) is the failure to relate to or explain the salient feature of the intrafamily allocation of time—the fact that at each point of time over 60 percent of all married women are not actively engaged in market production and that during any given year not more than 50 percent participate in the labor force. The explicit or implicit assumption that the wife works in the market limits the relevance of these models to at most one-half of all families, but leaves unanswered questions relating to the remainder, where the wife's sole occupation is housewife.

This paper attempts a general formulation of the intrafamily allocation of time. The members of a family allocate their time according to their comparative advantage in the production of market and

\* Hebrew University, Jerusalem. Parts of this paper are based on my study, "The Labor Force Participation of Israeli Women," carried out at the Maurice Falk Institute for Economic Research. I finished the paper while a postdoctoral fellow at the University of Chicago. I acknowledge the financial support of the Rockefeller Foundation through a grant to the University of Chicago for research on the Economics of Population and Family Decision Making. I benefited from the suggestions of Gary Becker, Giora Hanoch, Ruth Klinov, David Levhari, Gregg Lewis, and Shlomo Yizhaki, and I am grateful to Randall Olson for his devoted research assistance.

<sup>1</sup> This new approach is associated with the work of Gary Becker (1965) and Kelvin Lancaster (1966) but can actually be dated back to Wesley Mitchell (1937). Among its recent exponents are Stuart Altman and Robert Barro (1970), Gilbert Ghez and Becker (1972), Gronau (1970), Michael Grossman (1972), Robert Michael (1973), Haim Ofek (1970), and others.

<sup>2</sup> Most notably Jacob Mincer (1962, 1963), and later Glen Cain (1966) and Marvin Kosters (1963).

<sup>3</sup> Ofek and Gronau (1970b) used a two-stage CES function while Altman and Barro used a Cobb-Douglas function.

home goods. Comparative advantage is in turn determined by their relative wage rates and their efficiency in the production of home goods. Husbands' wage rates as a rule exceed those of wives. Thus, we observe that, in general, husbands specialize in work in the market, while the wife specializes in the production of home goods. Very crudely, one can distinguish three situations of specialization: the case where the husband divides his time between work in the market and leisure and the wife works both in the market and at home, spending the rest of her time on leisure; the case where the wife drops out of the labor force; and the case where the husband enters the home production process. These three phases are reflected in a difference in the factors determining the value of the wife's time. The value placed by the family on the wife's time while she works in the market is, of course, determined by her own marginal wage rate. When she leaves the labor market this tie is severed, and the price of her time is determined, in the second case, by family income, and, in the third case, it is determined by her husband's wage rate.

The wife's decision whether to participate in the labor force can, therefore, be viewed in terms of the comparison between her value of time in the absence of market opportunities and her potential wage rate. The result of this comparison is recorded in the labor force statistics. These statistics yield themselves however to two different interpretations, based on the self-selection of working wives from a frequency distribution of their alternative price of time. According to the first, the wives who work are those who are the least productive in the home sector, i.e., those whose value of time is the lowest, and, hence, the mean price of time of housewives exceeds the average wage rate of working women. By the second interpretation, those who work are the women

most fit for market work, i.e., those who have received the highest wage offers, and, hence, the mean price of time falls short of the average wage rate.

Using 1960 *U.S.* data it is found that under the first assumption, the housewives' average price of time exceeds the average wage of working women by less than 20 percent. Given the second assumption, the housewives' average price of time falls short of the average wage rate by about 20-30 percent. White women assign to their time a higher value than nonwhites. Only part of this difference may be explained by income differentials, the rest arising, seemingly, from differences in their age-education composition. Finally, it is found in the case of nonwhite women that the existence of a young child (less than three years old) raises his mother's price of time by about 6-8 percent. We could not, however, derive a similar estimate for white women.

#### I. The Intrafamily Allocation of Time

Let us consider for simplicity a household (family) consisting of two members: husband and wife. The household combines its members' leisure time with market and home goods to generate utility ( $U$ ).

$$(1) \quad U = U(M, H, L_1, L_2)$$

The arguments of the utility function will be termed factors, where  $M$  denotes the amount of market goods,  $H$  the amount of home goods,  $L_1$  the amount of the husband's leisure,  $L_2$  the amount of leisure enjoyed by the wife.<sup>4</sup> Home goods, in turn, are produced with a combination of market inputs and time and can be produced by either husband or wife.

One of the things distinguishing a family

<sup>4</sup> This formulation ignores the effects that intra-family distribution of goods may have on family welfare and assumes implicitly that work, whether in the market or in the nonmarket sector, carries no utility (or disutility).

from a single-person household is the exchange taking place within the family. Thus, the husband does not have to rely on his own talents to produce these goods (say, a meal) but can muster the services of his wife in exchange for say, his working in the market. Thus,  $H = H_1 + H_2$  where

$$(2) \quad H_i = H_i(X_i, T_{Hi}), \quad i = 1, 2$$

$H_i$  being the amount of home goods produced by person  $i$ , and  $X_i$  and  $T_{Hi}$  being, respectively, the amount of market inputs and time used in the process. The family aims at maximizing its utility subject to the constraints it confronts. These constraints are of two kinds: (a) the budget constraint, and (b) the time-constraint.

The family pools its pecuniary resources. Adopting a one-period model, the budget constraint states that expenditure on market goods and inputs cannot exceed the family income ( $I$ ).

$$(3) \quad P_M M + P_X X = W_1 T_{M_1} + W_2 T_{M_2} + V = I$$

where  $W_i$  denotes the wage rate of member  $i$ ,  $T_{M_i}$  the amount of time he spends working in the market,  $V$  other sources of income besides earnings,  $P_M$  and  $P_X$  the price of market goods ( $M$ ) and inputs ( $X$ ), respectively, and  $X = X_1 + X_2$ .

The family faces two separate time constraints stating that the amount of time spent by person  $i$  on work in the market, work at home, and leisure cannot exceed the total amount of time available ( $T_0$ )

$$(4) \quad T_{M_i} + T_{H_i} + L_i = T_0 \quad i = 1, 2$$

The maximization of the utility function (1) subject to the production function for home goods (2), and the budget and time constraints ((3) and (4), respectively), yields the family members' optimum allocation of time and the family's optimum allocation of expenditure between market goods and market inputs.

This optimum solution depends on the

specific nature of the utility function, the home goods production functions and the family members' wage rates and other sources of income. Let us assume, for simplicity, that the production of home goods calls for the combination of time and market inputs in fixed proportions.<sup>5</sup> Moreover, let us assume that these functions differ between husband and wife:

$$(5) \quad H_i = \min \left( \frac{X_i}{\gamma_i}, \frac{T_{Hi}}{\delta_i} \right) \quad i = 1, 2$$

$1/\gamma_i$  and  $1/\delta_i$  being, respectively, the marginal products of market inputs and time in the production of home goods. Given this assumption, inputs vary proportionately with the amount of home goods produced

$$(6) \quad \begin{aligned} X_i &= \gamma_i H_i \\ T_{Hi} &= \delta_i H_i \quad i = 1, 2 \end{aligned}$$

The marginal cost of producing one unit of home goods by person  $i$  ( $\Pi_i$ ) is

$$(7) \quad \Pi_i = \gamma_i P_X + \delta_i W_i^* \quad i = 1, 2$$

where  $W_i^*$  is the value placed on the time of person  $i$ .

If we assume that the values placed on the husband's and wife's time are constant (though not identical) and do not vary with amount of home goods produced,<sup>6</sup> and given our previous assumption concerning the constancy of  $\delta_i$  and  $\gamma_i$  the marginal costs of producing home goods are constant and differ, in general, between husband and wife. The family will turn for its supply of home goods to the cheaper of the two producers.

<sup>5</sup> This strong assumption could be replaced by the weaker assumption that the production function of home goods is homogeneous of degree  $t \geq 1$  without affecting the major conclusions of the model but at the cost of greatly complicating the computations.

<sup>6</sup> This assumption is removed later in this section.

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*Case I: Both Members of the Family  
Participate in the Labor Force*

If both members of the family participate in the labor force, the value of their time equals their wage rate ( $W_i^* = W_i$ ).<sup>7</sup> Their marginal costs of producing home goods are therefore

$$(8) \quad \Pi_i = \gamma_i P_X + \delta_i W_i, \quad i = 1, 2$$

The  $i$ th person's marginal costs of producing home goods depend on his marginal productivity ( $\gamma_i$  and  $\delta_i$ ) and his wage rate. Since in general the husband's exceeds the wife's wage rate the price charged by the husband for home goods exceeds that charged by the wife unless this difference in wages is offset by differences in efficiency. Consequently, all home goods are going to be produced by the wife, while her husband divides his time between work in the market and leisure (i.e.,  $T_{H_1} = 0$ ).

In this case, one can incorporate both time constraints (4) into the budget constraint (3) to obtain one ultimate constraint

$$(9) \quad I = P_M M + P_X X_2 \\ = W_1(T_0 - L_1) + W_2(T_0 - T_{H_2} - L_2) + V$$

Inserting the values of  $X_2$  and  $T_{H_2}$  in terms of the output of home goods into the equation, this constraint can be written

$$(10) \quad P_M M + \Pi H + W_1 L_1 + W_2 L_2 \\ = (W_1 + W_2)T_0 + V = I^*$$

where  $\Pi = \gamma_2 P_X + \delta_2 W_2$  is the price of home goods, and  $I^*$  is the family's "full income," i.e., the income the family could have earned had it devoted all its time to work in the market.

<sup>7</sup> Recall our assumption that work does not carry any utility (see fn. 4). Without this assumption one has to adjust the value of time for the money equivalent of the marginal utility (or disutility) of work (see Bruce Johnson (1966) and Gronau (1970a)).

The maximization of utility subject to the ultimate constraint (10) yields the familiar optimum conditions

$$(11) \quad u_M = \lambda P_M$$

$$u_H = \lambda \Pi$$

$$u_{L_1} = \lambda W_1$$

and

$$u_{L_2} = \lambda W_2$$

where  $u_Z(Z; M, H, L_1, L_2)$  denotes the marginal utility of factor  $Z$ , and  $\lambda$  is the marginal utility of income.

Given these necessary conditions one can generate the demand elasticities for market goods, home goods, and leisure. Of particular interest are the demand elasticities with respect to the husband's and wife's wage rates. The demand elasticity for factor  $Z$  ( $Z; M, H, L_1$  or  $L_2$ ) with respect to the husband's wage rate ( $\epsilon_{ZW_1}$ ) is

$$(12) \quad \epsilon_{ZW_1} = \frac{W_1 L_1}{I^*} \sigma_{L_1 Z} + \frac{W_1 T_{M_1}}{I^*} \epsilon_{Z I^*}$$

where  $\sigma_{L_1 Z}$  denotes the Allen partial elasticity of substitution between factor  $Z$  and the husband's leisure, and  $\epsilon_{Z I^*}$  denotes the "full income" elasticity of demand.<sup>8</sup> Specifically, the demand elasticity for the husband's leisure with respect to his wage rate is shown by equation (13).

<sup>8</sup> The full income elasticity exceeds the income elasticity of demand

$$\epsilon_{Z I^*} = \frac{I^*}{I} \epsilon_{Z I} > \epsilon_{Z I}$$

and equation (12) can also be written

$$\epsilon_{ZW_1} = \frac{W_1 L_1}{I^*} \sigma_{L_1 Z} + \frac{W_1 T_{M_1}}{I} \epsilon_{Z I}$$

When the utility function is linear homogeneous  $\epsilon_{Z I^*} = 1$  and

$$\epsilon_{ZW_1} = \frac{W_1 L_1}{I^*} \sigma_{L_1 Z} + \frac{W_1 T_{M_1}}{I^*}$$

$$(13) \quad \epsilon_{L_1, W_1} = \frac{W_1 L_1}{I^*} \sigma_{L_1, W_1} + \frac{W_1 T_{M_1}}{I^*} \epsilon_{L_1, I^*}$$

The husband's elasticity of supply of working time is therefore

$$(14) \quad \epsilon_{T_{M_2}, W_1} = -\frac{L_1}{T_{M_1}} \epsilon_{L_1, W_1} \\ = -\left( \frac{W_1 L_1}{I^*} \frac{L_1}{T_{M_1}} \sigma_{L_1, L_1} + \epsilon_{L_1, I^*} \right)$$

Since  $\sigma_{L_1, L_1}$  is always negative and  $\epsilon_{L_1, I^*}$  can be safely assumed to be positive, we encounter the familiar result that the slope of the labor supply curve depends on the relative magnitudes of the elasticity of substitution and the full income elasticity of leisure.<sup>9</sup>

Similarly, the cross elasticities of demand for home goods and the wife's leisure with respect to the husband's wage rate are

$$(15) \quad \epsilon_{H, W_1} = \frac{W_1 L_1}{I^*} \sigma_{L_1, H} + \frac{W_1 T_M}{I^*} \epsilon_{H, I^*}$$

$$\epsilon_{L_2, W_1} = \frac{W_1 L_1}{I^*} \sigma_{L_1, L_2} + \frac{W_1 T_{M_1}}{I^*} \epsilon_{L_2, I^*}$$

The elasticity of demand for the wife's working time at home with respect to her husband's wage rate ( $\epsilon_{T_{M_2}, W_1}$ ) equals the demand elasticity for home goods with respect to  $W_1$  ( $\epsilon_{H, W_1}$ ). If home goods and the wife's leisure are competitive with the husband's leisure (i.e., if  $\sigma_{L_1, L_2}, \sigma_{L_1, H} > 0$ ), an increase in the husband's wage rate will be accompanied by an increase in the amount of time the wife spends at home

<sup>9</sup> When the utility function is linear homogeneous the necessary condition for the backward bending supply curve of labor is

$$|\sigma_{L_1, L_1}| > \frac{T_{M_1}}{L_1} = \frac{T_{M_1}}{T_0 - T_{M_1}}$$

and, consequently, by a decline in the amount of time she devotes to the market sector.<sup>10</sup> This is seen in equation (16).

$$(16) \quad \epsilon_{T_{M_2}, W_1} = \\ - \left\{ \frac{W_1 L_1}{I^*} \left( \frac{L_2}{T_{M_2}} \sigma_{L_1, L_2} + \frac{T_{H_2}}{T_{M_2}} \sigma_{L_1, H} \right) \right. \\ \left. + \frac{W_1 T_{M_1}}{I^*} \left( \frac{L_2}{T_{M_2}} \epsilon_{L_2, I^*} + \frac{T_{H_2}}{T_{M_2}} \epsilon_{H, I^*} \right) \right\}$$

An increase in the wife's wage rate increases both the price of her leisure and the price of home goods, the increase in the latter being a function of the share of the cost of time in the total production cost of home goods. The demand elasticity of factor  $Z$  ( $Z: M, H, L_1$ , or  $L_2$ ) with respect to the wife's wage rate reflects the substitution elasticity of factor  $Z$  for both the wife's leisure and home goods, as well as the full income elasticity of this factor

$$(17) \quad \epsilon_{Z, W_2} = \frac{W_2 L_2}{I^*} \sigma_{L_2, Z} \\ + \frac{W_2 T_{H_2}}{I^*} \sigma_{H, Z} \\ + \frac{W_2 T_{M_2}}{I^*} \epsilon_{Z, I^*}$$

Under the previous assumption that the husband's leisure is competitive with both home goods and the wife's leisure one would expect the husband's leisure to increase, and hence his supply of labor to decrease, as his wife's wage rate increases. This is seen in equation (18).

<sup>10</sup> This conclusion holds even if the husband's and wife's leisure are complementary factors and  $\sigma_{L_1, L_2} < 0$  so long as the elasticity of substitution between the husband's leisure and home goods ( $\sigma_{L_1, H}$ ) is positive and sufficiently large.

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$$-\frac{L_1}{T_{M_1}} \left( \frac{W_2 L_2}{I^*} \sigma_{L_1 L_2} + \frac{W_2 T_{H_2}}{I^*} \sigma_{L_1 H} + \frac{W_2 T_{M_2}}{I^*} \epsilon_{L_1 I^*} \right)$$

$$+ \frac{W_2 T_{H_2}}{I^*} \sigma_{H H} + \frac{W_2 T_{M_2}}{I^*} \epsilon_{H I^*}$$

However, it can be shown that, in general, the wife's supply of labor is more sensitive to changes in her husband's wage rate than her husband's supply of labor is to changes in her wage rate.<sup>11</sup>

The elasticity of the wife's supply of labor with respect to her own wage rate depends on the family's demand for her leisure and for home goods. These elasticities are

(19) 
$$\epsilon_{L_2, W_2} = \frac{W_2 L_2}{I^*} \sigma_{L_2 L_2} + \frac{W_2 T_{H_2}}{I^*} \sigma_{H L_2} + \frac{W_2 T_{M_2}}{I^*} \epsilon_{L_2 I^*}$$

and

$$\epsilon_{H W_2} = \frac{W_2 L_2}{I^*} \sigma_{H L_2}$$

<sup>11</sup> Comparing (16) and (18) we get

$$\begin{aligned} \epsilon_{T M_1, W_1} - \epsilon_{T M_1, W_2} &= \frac{1}{I^*} \left\{ \frac{L_1 (W_1 T_{M_1} - W_2 T_{M_2})}{T_{M_1} T_{M_2}} (L_2 \sigma_{L_1 L_2} + T_{H_2} \sigma_{L_1 H}) \right. \\ &+ \left( \frac{W_1 T_{M_1}}{T_{M_2}} (L_2 \epsilon_{L_1 I^*} + T_{H_2} \epsilon_{H I^*}) \right) \\ &\left. - \left( \frac{W_2 T_{M_2}}{T_{M_1}} L_1 \epsilon_{L_1 I^*} \right) \right\} \end{aligned}$$

If the full income elasticities  $\epsilon_{L_1 I^*}$ ,  $\epsilon_{L_2 I^*}$  and  $\epsilon_{H I^*}$  are about equal,  $\epsilon_{T M_1, W_1} > \epsilon_{T M_1, W_2}$ , since the husband spends more time than his wife in the market and earns more than she does.

The sign of these elasticities is indeterminate since the income and substitution effects tend to have opposite effects on the quantity of leisure demanded.<sup>12</sup> Given the income elasticities ( $\epsilon_{L_1 I^*}$  and  $\epsilon_{H I^*}$ ) and the substitution elasticities ( $\sigma_{L_2 L_2}$ ,  $\sigma_{H H}$ , and  $\sigma_{H L_2}$ ), the demand elasticities ( $\epsilon_{L_2 W_2}$  and  $\epsilon_{H W_2}$ ) depend on the distribution of the wife's time between market and nonmarket activities. The smaller amount of time the wife spends in the market, the smaller the income effect, and since

(20) 
$$\epsilon_{T M_2, W_2} = - \left( \frac{L_2}{T_{M_2}} \epsilon_{L_2 W_2} + \frac{T_{H_2}}{T_{M_2}} \epsilon_{H W_2} \right)$$

the greater the tendency of her supply of labor to be positively sloped. Furthermore, if the income elasticities of all factors are the same (specifically, if  $\epsilon_{L_1 I^*} = \epsilon_{L_2 I^*} = \epsilon_{H I^*}$ ) one would, from a comparison of (20), (19), and (14), expect the wife's labor supply curve to have less tendency to bend backwards than her husband's, since the wife's earnings constitute a smaller share of full income than the husband's. Put differently, if the wife's labor supply curve bends backwards it will do so only at a point (i.e., number of hours) which is to the right of the bending point of her husband's supply curve.

*Case II: Only the Husband Participates in the Labor Market*

An increase in family income, whether as a result of an increase in the husband's wage rate ( $W_1$ ) or in other sources of income ( $V$ ), is accompanied by an increase

<sup>12</sup> Assuming home goods and the wife's leisure to be normal (i.e., not inferior) inputs and  $\sigma_{M L_1}$ ,  $\sigma_{M H}$ ,  $\sigma_{L_1 L_2}$ ,  $\sigma_{L_1 H} > 0$ .

in the demand for both wife's leisure and home goods. Eventually, the wife drops out of the labor market altogether, dividing her time exclusively between work at home and leisure. The wife's exit from the labor market severs the link between the value of her time and her potential wage rate (i.e., the wage she could have earned had she stayed in the labor force). The value placed by the family on the wife's time depends on the value of the marginal product of her labor inputs in the production of home goods. The mere fact that the wife prefers not to work in the market indicates that the value of her time exceeds her potential wage rate.

Formally, when the wife is not working in the market one cannot treat identically the two separate time constraints confronting the family, i.e., one cannot incorporate both constraints in the ultimate budget constraint. The family's budget is unaffected by the wife's allocation of time between work at home and leisure. If we still maintain that the husband does not work at home, one can write the budget constraint as

$$(21) \quad P_M M + P_X X_2 = W_1 T_{M1} + V \\ = W_1(T_0 - L_1) + V$$

or alternatively as

$$(22) \quad P_M M + P_X \gamma_2 H + W_1 L_1 = W_1 T_0 + V$$

The family, however, faces an additional constraint—the wife's time constraint, stating that the time used by the wife in the production of home goods plus her leisure time cannot exceed total time available.

$$(23) \quad T_{H2} + L_2 = \delta_2 H + L_2 = T_0$$

The maximization of utility therefore takes place under two separate constraints: the budget constraint (22) and the wife's time constraint (23).

The optimum conditions look familiar

$$(24) \quad u_M = \lambda P_M \\ u_H = \lambda \Pi^* \\ u_{L_1} = \lambda W_1$$

and

$$u_{L_2} = \lambda W_2^*$$

where  $\Pi^* = \lambda_2 P_X + \delta_2 W_2^*$ . However, in this case, the value  $W_2^*$  placed on the wife's time, and, consequently, the price of home goods  $\Pi^*$  is not exogenously given, but rather determined by the maximization process. A change in the parameters ( $P_M$ ,  $P_X$ ,  $W_1$ , and  $V$ ) changes both the optimum solution and the price placed by the family on the wife's time and home goods.

For example, an increase in the family's other sources of income ( $V$ ) would, in the absence of the wife's time constraint, result in an increase of all the four components of the utility function (assuming none of the four is an inferior input). However, given the time constraint the wife cannot simultaneously increase both her leisure and the time she spends in producing home goods. The increase in the demand for the wife's time results in an increase in the price placed on this time. The increase in income is, therefore, accompanied by a substitution of the husband's leisure and market goods for the wife's leisure and home goods.<sup>13</sup> The leisure of husbands whose wives do not work should, therefore, be more sensitive to changes in income than the leisure of husbands whose wives work in the market. Put differently, the tendency for the husband's supply of labor to bend backwards should be more prevalent among husbands

<sup>13</sup> The proof is included in an unpublished Appendix. The result that the price assigned to the housewife's time increases with family income is a general one, and holds even if one does not distinguish between the wife's leisure and her work at home. The distinction is, however, crucial if one wants to explain the different participation patterns of husbands and wives.

of nonworking wives than among husbands of working wives.

As for the wife, an increase in income results in an increase in the value of her time and an increase in the price of both her leisure and home goods, the increase in the latter being a function of the share of the cost of time in the total production costs of home goods. The demand for the wife's leisure and time inputs in the production of home goods is, therefore, affected by two contradictory forces: the income effect and the substitution effect. Since the total time available for the two activities remains constant, the increase in the price of time must be sufficiently large for the substitution effect of one of these factors to outweigh its income effect. Which of these factors, the wife's leisure or her working time at home, will decline depends on the part time plays in the production of home goods, the income elasticities of the two factors and the substitution elasticities between these factors and market goods and the husband's leisure  $\sigma_{MH}$ ,  $\sigma_{ML_2}$ ,  $\sigma_{HL_1}$ , and  $\sigma_{L_2L_1}$ .<sup>14</sup>

Finally, if the husband's wage rate  $W_1$  and other sources of income are sufficiently large, the value placed on the wife's time becomes so large as to make husband-produced and wife-produced home goods equally costly

$$(25) \quad \Pi_1 = \gamma_1 P_X + \delta_1 W_1 = \gamma_2 P_X + \delta_2 W_2^* = \Pi_2$$

In this case the husband is called upon to help his wife at home. The husband divides his time between work in the market, work at home, and leisure, while his wife divides her time between work at home and leisure. The wife's value of time is pegged to her husband's wage rate.

$$(26) \quad W_2^* = \left( \frac{\gamma_1 - \gamma_2}{\delta_2} \right) P_X + \left( \frac{\delta_1}{\delta_2} \right) W_1$$

When husband and wife are equally efficient in the use of market inputs ( $\gamma_1 = \gamma_2$ ) the wife's value of time is proportionate to the husband's. The wife's price of time will equal the husband's wage rate if both husband and wife share the same production function.

In this case an increase in other sources of income ( $V$ ), husband's wage rate remaining constant, does not change the relative prices of goods and leisure. Thus, the increase in  $V$  should result in an increase in the demand of all factors. Both husband's and wife's leisure are expected to increase. Likewise, one expects the production of home goods to expand, the husband taking over some of the work given up by his wife. The increase in the husband's leisure and his work at home result in a decline of the amount of work supplied in the market.

An increase in the husband's wage rate raises the price of both his and his wife's leisure and the price of home goods relative to the price of market goods. The substitution effect tends to increase the husband's work in the market while the income effect works in the opposite direction. Similarly, one cannot predict the effect of an increase in the husband's wage rate on the wife's allocation of time. It depends on the relative change of the price of the wife's leisure versus the price of home goods and on the income and substitution elasticities of these two factors.

## II. The Value of the Housewives' Time

An empirical estimation of the demand for leisure and the supply of work at home calls for detailed data concerning the time budgets of the various family members. The existing published data are too crude to provide conclusive results. In the absence of data on the nonmarket sector one has to make inferences about the decision-making process of the family from its revealed preferences with respect to work in

<sup>14</sup> The proof is included in an unpublished Appendix.

the market. This subject has been investigated in the family context, with somewhat mixed results.<sup>15</sup> However, one implication of our model that has been entirely overlooked is the implication of labor force participation on the value of housewives' time.

Over 60 percent of married women in the United States are classified as full-time housewives (William Bowen and T. A. Finegan, p. 88). Thus, the wage rate serves only as a very crude indication of the value of time for more than one-quarter of the adult population. Given the importance of the price of time as a determinant of housewives' purchasing, travelling, and recreation habits it is of the utmost importance to get some better estimate of the value of time for this population group. Such an estimate can be generated from the observed data on labor force participation.

One of the implications of the preceding section states that while the value of time of working women equals their wage rate, the value placed on the time of housewives exceeds their potential wage rate and increases with family income. The wife's decision to enter the labor market can therefore serve as an indication that in the absence of market opportunities her value of time would have fallen short of her current wage rate. Similarly, the wife's decision to refrain from entering the labor force indicates that her value of time exceeds her potential wage rate.

The rate of labor force participation depends on the joint distribution of the potential wage rate and the wives' price of time in the absence of market opportunities. Formally, let  $f(W, W^*)$  be the

joint density function of the potential wage  $W$  and the price of time  $W^*$ , then the participation rate equals

$$(27) \quad P = \text{Prob}(W > W^*) \\ = \int_{-\infty}^{\infty} \int_{W^*}^{\infty} f(W, W^*) dW dW^*$$

The average wage of working women and the housewives' average price of time are means of truncated distributions. The average wage  $\bar{W}$  equals the expected value of  $W$ , where  $W$  exceeds  $W^*$ ,

$$(28) \quad \bar{W} = E(W | W > W^*) \\ = \frac{1}{P} \int_{-\infty}^{\infty} \int_{W^*}^{\infty} W f(W, W^*) dW dW^*$$

and the housewives' average price of time  $\bar{W}^*$  is the conditional expectation of  $W^*$  where  $W^*$  exceeds  $W$ .

$$(29) \quad \bar{W}^* = E(W^* | W^* > W) \\ = \frac{1}{1-P} \int_{-\infty}^{\infty} \int_W^{\infty} W^* f(W, W^*) dW^* dW$$

A prerequisite for the estimation of  $\bar{W}^*$  (and the factors determining labor force participation) is the knowledge of the shape and parameters of  $f(W, W^*)$ .<sup>16</sup>

To estimate  $f(W, W^*)$  one has to rely on knowledge of the truncated wage distribution  $g(W | W > W^*)$  and the portion this distribution constitutes of the total wage offer distribution, i.e., the participation rate  $P = \text{Prob}(W > W^*)$ . In general one does not possess any information with regard to  $g(W | W > W^*)$  beyond the knowledge of its mean. Thus, one has to replace the missing information by a set of assumptions. I shall assume that  $W$  and  $W^*$  are independently distributed and that their joint distribution is bivariate normal

<sup>15</sup> Kosters estimated the supply of hours of work of men aged 50-64, but was unable to produce a positive compensated wage rate elasticity. Cain came up with estimates of elasticities which have the right sign. However, a recent paper by Yoram Ben-Porath casts doubts on the validity of Cain's interpretation.

<sup>16</sup> For a more detailed analysis of the problems involved in the estimation of the determinants of labor force participation see Ben-Porath and, in particular, Gregg Lewis.

$$(30) f(W, W^*) = \frac{1}{2\pi\sigma_W\sigma_{W^*}} \exp \left\{ -\frac{1}{2} \left( \frac{W - \mu_W}{\sigma_W} \right)^2 + \left( \frac{W^* - \mu_{W^*}}{\sigma_{W^*}} \right)^2 \right\} \\ = \frac{1}{2\pi\sigma_W\sigma_{W^*}} \cdot \exp \left\{ -\frac{1}{2} (x^2 + y^2) \right\}$$

where  $\mu_W$  and  $\mu_{W^*}$  are the mean values, and  $\sigma_W$  and  $\sigma_{W^*}$  are the standard deviations of the marginal distributions of  $W$  and  $W^*$ , respectively, and where  $x = (W - \mu_W)/\sigma_W$  and  $y = (W^* - \mu_{W^*})/\sigma_{W^*}$  are standardized normal variables. Of the two assumptions, normality and independence, the latter is clearly the more controversial since it asserts that none of the factors determining  $W$  (for example, education, age, natural ability) affects  $W^*$ , and vice versa. This assumption is, therefore, adopted with mixed feelings, being crucial to the estimation procedure.

Let it be assumed that the mean wage rate  $\mu_W$  is a sole function of age and education and that the mean price of time  $\mu_{W^*}$  depends solely on the family's income. The rate of labor force participation within a given age-education-income group equals

$$(31) P = \text{Prob}(W = \mu_W + x\sigma_W > \mu_{W^*} + y\sigma_{W^*}) \\ = \text{Prob}(x > A + B y = y^*) \\ = \frac{1}{2\pi} \int_{-\infty}^{\infty} \int_{y^*}^{\infty} \exp \left\{ -\frac{1}{2} (x^2 + y^2) \right\} dx dy$$

where  $A = (\mu_{W^*} - \mu_W)/\sigma_W$  and  $B = \sigma_{W^*}/\sigma_W$ . The average wage rate of working women equals

$$(32) \quad \bar{W} = \mu_W + x\sigma_W$$

where<sup>17</sup>

$$(33) \quad x = E(x | x > y^*) = \frac{1}{2\pi P} \int_{-\infty}^{\infty} \int_{y^*}^{\infty} x \exp \left\{ -\frac{1}{2} (x^2 + y^2) \right\} dx dy \\ = \frac{1}{P} \left( 2\pi \frac{\sigma_W^2 + \sigma_{W^*}^2}{\sigma_W} \right)^{-1/2} \cdot \exp \left\{ -\frac{1}{2} \frac{(\mu_{W^*} - \mu_W)^2}{\sigma_W^2 + \sigma_{W^*}^2} \right\}$$

The knowledge of  $P$  and  $\bar{W}$  is insufficient for the estimation of the four parameters of  $f(W, W^*)$ , namely  $\mu_W$ ,  $\mu_{W^*}$ ,  $\sigma_W$  and  $\sigma_{W^*}$ . To estimate these parameters we have to adopt two alternative extreme assumptions:

- a)  $\sigma_W = 0$  and  $\sigma_{W^*}$  is insensitive to income  
and b)  $\sigma_{W^*} = 0$  and  $\sigma_W$  is independent of age and education.

If it is assumed that all women in a given age-education group anticipate the same wage rate  $\mu_W$  (i.e.,  $\sigma_W = 0$ ), differences in participation behavior of women sharing the same market characteristics are explained in terms of differences in their price of time (see Figure 1). The labor force participation rate within an age-education-income group equals

$$(34) \quad P = \text{Prob}(W^* < \mu_W) \\ = \text{Prob} \left( y = \frac{W^* - \mu_{W^*}}{\sigma_{W^*}} < \frac{\mu_W - \mu_{W^*}}{\sigma_{W^*}} \right) \\ = -\frac{A}{B} = Z$$

Moreover, since  $\sigma_W = 0$ , the average wage rate of working women equals the mean value of the wage offer distribution  $\bar{W} = \mu_W$ . Thus

$$(35) \quad Z = -\frac{A}{B} = \frac{\mu_W - \mu_{W^*}}{\sigma_{W^*}} = \frac{\bar{W} - \mu_{W^*}}{\sigma_{W^*}}$$

or alternatively

$$(36) \quad \bar{W} = \mu_{W^*} + Z\sigma_{W^*}$$

<sup>17</sup> See the mathematical appendix of Gronau (1973).

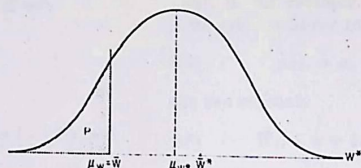


FIGURE 1

Observing that in income group  $i$ ,  $P_{ij}$  percent of the women belonging to potential wage group  $j$  (i.e., age-education group  $j$ ) participate in the labor force, one can (using the tables of the normal distribution) generate the values of  $Z_{ij}$  satisfying  $\text{Prob}(Z < Z_{ij}) = P_{ij}$ . Given a sufficient number of potential wage groups one can estimate within each income group  $i$

$$(37) \quad \bar{W}_{ij} = a_i + b_i Z_{ij}$$

the constant term  $a_i$  serving as the estimate of the mean value of time  $\mu_{W^*i}$  in this income group and the regression coefficient  $b_i$  serving as an estimate of the standard deviation  $\sigma_{W^*i}$ .

Alternatively, one can assume that differences in participation behavior originate in differences in wage offers, i.e., the standard deviation of the value of time distribution within a given income group equals zero ( $\sigma_{W^*i} = 0$ , see Figure 2). The rate of participation within a given age-education-income group is

$$(38) \quad P = \text{Prob}(W > \mu_{W^*}) \\ = \text{Prob}\left(x = \frac{W - \mu_{W^*}}{\sigma_W} > \frac{\mu_{W^*} - \mu_{W^*}}{\sigma_W} = A\right)$$

By equations (32) and (33) the average wage of working women is  $\bar{W} = \mu_W + \bar{x}\sigma_W$  where

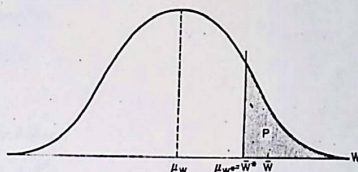


FIGURE 2

$$(39) \quad \bar{x} = E(x | x > y^* = A) \\ = \frac{1}{P\sqrt{2\pi}} \int_A^\infty x \exp(-\frac{1}{2}x^2) dx \\ = \frac{1}{P\sqrt{2\pi}} \exp(-\frac{1}{2}A^2)$$

since  $B=0$

Given the value of  $P_{ij}$ , one can generate the value of  $A_{ij}$  and compute the value of  $\bar{x}_{ij}$ . Since  $\mu_W = \mu_{W^*} - A\sigma_W$

$$(40) \quad \bar{W}_{ij} = \mu_{Wj} + \bar{x}_{ij}\sigma_{Wj} \\ = \mu_{W^*i} + (\bar{x}_{ij} - A_{ij})\sigma_{Wj} \\ = \mu_{W^*i} + Z_{ij}\sigma_{Wj}$$

Assuming that the standard deviation of the wage offer distribution does not vary among potential wage groups, one can estimate within each income group

$$(41) \quad \bar{W}_{ij} = a_i + b_i Z_{ij}^*$$

Again, the constant is an estimate of the mean value of time  $\mu_{W^*i}$ , and the regression coefficient  $b_i$  is an estimate of the standard deviation of the wage offer distribution  $\sigma_{W^*i}$ .

If one assumes that all women in a given income group share the same price of time ( $\sigma_{W^*i} = 0$ ),  $\bar{W}^*$  equals  $\mu_{W^*}$  and equation (41) can be used to estimate the households' average price of time. If, however, one adopts the other assumption, i.e., that women belonging to the same income-age-education group have identical wage expectations but may differ in the price assigned to their time,  $\bar{W}^*$  exceeds  $\mu_{W^*}$ .

$$(42) \quad \bar{W}^* = \mu_{W^*} + \bar{y}\sigma_{W^*} \geq \mu_{W^*}$$

since<sup>18</sup>

$$(43) \quad \bar{y} = E(y/y^* > x) \\ = \frac{1}{(1-P)\sqrt{2\pi}} \exp(-\frac{1}{2}Z^2) > 0$$

One therefore has to compute  $\bar{y}$ , and using the estimates of  $\mu_{W^*}$  and  $\sigma_{W^*}$  derived from equation (37) one can obtain an estimate of the housewives' average price of time.

It is worth noting the difference between our two assumptions. According to the first assumption ( $\sigma_{W^*}=0$ ), women who work are those who have the lowest price of time, i.e., are the least productive at home while by the second assumption ( $\sigma_{W^*}=0$ ), women who work are those who have received the highest wage offers, i.e., are the most productive in the market. This difference carries over to the relationship between the housewives' average value of time and the average market wage rate. According to the first assumption, one expects the housewives' average value of time to exceed the average wage rate,  $\bar{W}^* = E(W^* | W^* > \mu_{W^*} = \bar{W}) \geq \bar{W}$ . By the second assumption  $\bar{W}^*$  falls short of  $\bar{W}$ , i.e.  $\bar{W} = E(W | W > \mu_{W^*} = \bar{W}^*) \geq \bar{W}^*$ . Actually, it can be shown that these estimates yield extreme limits for the mean value of time.<sup>19</sup>

Finally, if the size of the sample does not allow a very detailed classification of potential wage groups, the number of observations might be too small to allow reliable estimates of equations (37) and (41). In this case the relationship between the mean value of time  $\mu_{W^*}$  and income  $I$  (i.e.,  $\mu_{W^*} = g(I_i)$ ) must be prespecified.

Thus, if, for example, one assumes that there exists a linear relationship

$$(44) \quad \mu_{W^*} = \alpha_0 + \alpha_1 I_i$$

one can estimate

$$(45) \quad \bar{W}_{ij} = a + b_1 I_i + b_2 Z_{ij}$$

$$\bar{W}_{ij} = a + b_1 I_i + b_2 Z_{ij}^*$$

where  $a = \text{est}(\alpha_0)$ ,  $b_1 = \text{est}(\alpha_1)$ ,  $b_2 = \text{est}(\sigma_{W^*})$ , and  $b_2 = \text{est}(\sigma_W)$

#### IV. The Results

To estimate the value of time of U.S. housewives, I used the 1960 Census 1/1000 sample. To isolate the effect of other adults (besides the husband and the wife) on home production and the housewife's value of time I focused on primary families in households without nonrelatives. The sample was restricted to urban white (with no Spanish surname) and Negro married women, spouse present, and consisted of 26,530 observations.

These observations were subclassified according to the woman's race (white, Negro), age (less than 30, 30-49, 40-49, 50+), education (elementary school, high school, college and graduate studies), annual family income when the wife's earnings are excluded (income less than \$2,000, \$2,000-\$2,999, \$3,000-\$3,999, . . . , \$9,000-\$9,999, \$10,000-\$14,999, \$15,000-\$19,999, and \$20,000+) and the existence or non-existence of children less than three years old. This classification yielded 768 cells ( $= 2 \times 4 \times 4 \times 1 \times 2 \times 2$ ).

For each cell, I computed the rate of labor force participation (i.e., the percentage of women working or looking actively for work in the week preceding the census), the average income and the average wage of working women. The participation measure reflects the wife's work decision with respect to one specific week

<sup>18</sup> See the Appendix of Gronau (1973).

<sup>19</sup> See the Appendix of Gronau (1973). I have not been able to prove that the first estimate yields an upper limit of  $\mu_{W^*}$ .

TABLE 1—EDUCATION, AGE, INCOME, AND WAGE DISTRIBUTIONS OF URBAN MARRIED WOMEN BY RACE AND EXISTENCE OF YOUNG CHILD

	Whites			Nonwhites		
	Total <sup>a</sup>	No Young Child <sup>d</sup>	One Young Child	Total <sup>a</sup>	No Young Child	One Young Child
Number in Sample	24,462	19,244	4,079	2,068	1,547	339
Educational Distribution <sup>a</sup>						
Elementary School	24.5	28.1	10.8	42.8	47.7	27.7
High School	58.3	55.4	68.7	48.8	44.2	61.4
College	16.0	15.1	19.3	7.3	7.0	9.4
Graduate Education	1.3	1.3	1.3	1.1	1.0	1.5
Age Distribution <sup>a</sup>						
<30	25.9	14.2	65.9	30.6	17.8	63.1
30-39	27.0	26.5	31.1	29.0	29.6	30.7
40-49	22.1	27.4	2.9	20.6	26.1	5.6
50+	25.1	31.8	0.1	19.9	26.4	0.6
Average Income <sup>b</sup>						
Total Population	6,732	6,877	6,268	3,781	3,822	3,739
Working Women	5,861	5,941	5,070	3,719	3,787	3,216
Average (Potential) Wage						
Working Women	2.019	2.008	2.104	1.528	1.540	1.539
Nonworking Women	2.072	2.083	2.240	1.451	1.329	1.106
Participation Rate						
P	.316	.361	.164	.437	.487	.336
Z	-0.48	-0.36	-0.98	-0.16	-0.03	-0.42

<sup>a</sup> The total includes also mothers with two children younger than three years of age who are not reported in the table.

<sup>b</sup> Wife's earnings excluded.

<sup>c</sup> Given in percent.

<sup>d</sup> Young children are three years of age or less.

and the analysis is therefore limited to the short-run determinants of the housewives' value of time. Likewise, the income measured is current income and does not capture the effect of permanent income on the participation behavior. Finally, the average wage variable is far from being ideal. The 1960 Census reports the number of working hours in the week preceding the census week, the number of weeks worked in 1959, and the wife's earnings in 1959. To obtain a measure of the hourly wage I divided the 1959 earnings by the product of the 1960 weekly hours and the 1959 annual weeks worked and averaged this measure over all women working both in 1959 and in 1960 who belonged to the specific cell. Some of the characteristics of the women belonging to the sample are described in Table 1.

Equation (45) was estimated separately for whites and nonwhites, and within each race group for all women, women without a child younger than three years old and women with one child younger than three.<sup>20</sup> To correct for differences in cell size I fitted a weighted regression, the weights being the number of working women in the cell (i.e., the number of observations used to compute  $\bar{W}$ ). The results of this regression are reported in Table 2. Of the twelve regressions reported in Table 2, all are significant (at a level of significance of 0.01) except for those relating to white mothers with a child younger

<sup>20</sup> Originally, I distinguished between women with no child less than three years old, mothers of one child less than three, and mothers of two or more children less than three. The last group was, however, too small to allow the estimation of equation (45).



TABLE 2—THE DETERMINANTS OF THE HOUSEWIFE'S VALUE OF TIME  
 $\mu_{W^*} = \alpha_0 + \alpha_1 I$ 

	Adjusted $R^2$	Constant		Income <sup>a</sup> $I$		$Z(Z^*)$	
		$a$	$t$	$b_1$	$t$	$b_2$	$t$
Assumption I ( $\sigma_{W^*} = 0$ ): $\bar{W} = a + b_1 I + b_2 Z$							
Whites							
Total	0.22	1.608	21.33	0.8688	7.33	0.2782	2.58
No Young Child <sup>b</sup>	0.22	1.548	20.31	0.8490	7.12	0.2242	2.31
One Young Child	0.02	1.612	5.28	0.9586	1.88	-0.0085	-0.04
Nonwhites							
Total	0.07	1.319	6.46	0.4713	1.01	0.3643	2.81
No Young Child	0.09	1.287	5.97	0.3697	0.77	0.4261	3.37
One Young Child	0.20	1.016	2.96	1.5364	1.63	0.3528	2.34
Assumption II ( $\sigma_{W^*} = 0$ ): $\bar{W} = a + b_1 I + b_2 Z^*$							
Whites							
Total	0.23	1.073	5.26	0.8348	7.35	0.6548	2.67
No Young Child	0.22	1.146	6.25	0.8198	7.23	0.4994	2.54
One Young Child	0.02	1.632	4.58	0.9615	1.93	-0.0255	-0.33
Nonwhites							
Total	0.08	0.885	3.72	0.3993	0.86	0.5409	3.10
No Young Child	0.09	0.865	3.38	0.3298	0.68	0.5503	3.26
One Young Child	0.20	0.631	1.72	1.3577	1.43	0.4917	2.38

<sup>a</sup> Income is measured in units of \$10,000.

<sup>b</sup> Young children are three years of age or less.

than three years old. The coefficients of  $Z$  and  $Z^*$  are positive and significant for all the remaining ten regressions, but the income coefficient, though positive as expected, is significant only in the case of white women. The standard deviation of the wage offer distribution is found to be in the range of 50–65 cents per hour. The standard deviation of the price of time distribution is 35–43 cents per hour for nonwhites and somewhat lower (22–28 cents per hour) for white women. An increase in the husband's annual earnings of one thousand dollars (roughly 50 cents an hour) increases the mean value of time of his wife by about 8.2–8.7 cents per hour when she is white.

These results are essentially upheld when it is assumed that  $\mu_{W^*}$  is a linear function of the natural logarithm of income (i.e.,  $\mu_{W^*} = \alpha_0 + \alpha_1 \log(I)$ ) or when the dispersion of  $W^*$  is allowed to vary linearly with income. The assumption that  $\mu_{W^*}$  is a linear function of  $\log(I)$  resulted

in significantly inferior estimates in the case of the white women, and did very little to improve the explanatory power of the regression in the case of nonwhites and thus I do not report the results here.

To estimate the mean price of time in the absence of market opportunities ( $\mu_{W^*}$ ) of the women belonging to a given age-education-income group I computed for each cell

$$(46) \quad \mu_{W^*} = \bar{W} - b_2 Z$$

where it is assumed that  $\sigma_{W^*} = 0$ , and

$$(47) \quad \mu_{W^*} = \bar{W} - b_2 Z^*$$

where it is assumed that  $\sigma_{W^*} = 0$ . Weighting each cell by the number of women belonging to the group and summing the estimates over all cells yields an estimate of the mean price of time in the population. Table 3 presents estimates of  $\mu_{W^*}$  based on the estimates of  $\sigma_{W^*}$  and  $\sigma_W$  (i.e., the coefficient  $b_2$ ) shown in table 2.

It is found that the mean price of time

TABLE 3—ESTIMATES OF THE MEAN PRICE OF TIME AND THE HOUSEWIVES' AVERAGE PRICE OF TIME BY RACE AND EXISTENCE OF YOUNG CHILDREN

	Whites		Total	Nonwhites	
	Total	No Young Child <sup>a</sup>		No Young Child	One Young Child <sup>a</sup>
Labor Force Participation <sup>b</sup>	31.6	36.1	43.7	48.7	33.6
Average Potential Wage					
All Married Women ( $\bar{W}_M$ )	2.058	2.058	1.504	1.443	1.415
Working Women ( $\bar{W}_W$ )	2.019	2.008	1.528	1.540	1.539
Housewives ( $\bar{W}_H$ )	2.077	2.086	1.492	1.365	1.382
Assumption I ( $\sigma_W = 0$ )					
Mean Price of Time ( $\mu_{W^*}$ )	2.199	2.144	1.544	1.427	1.518
Income Elasticity of $\mu_{W^*}(\epsilon_{W^*,Y})$	0.27	0.27	0.12	0.10	0.38
Housewives' Price of Time ( $\bar{W}^*$ )	2.373	2.315	1.822	1.741	1.734
$\bar{W}^*/\bar{W}_H$	1.14	1.11	1.22	1.28	1.26
$\bar{W}^*/\bar{W}_W$	1.18	1.15	1.19	1.13	1.13
Assumption II ( $\sigma_{W^*} = 0$ )					
Mean Price of Time ( $\mu_{W^*}$ )	1.631	1.713	1.071	0.966	1.047
Income Elasticity of $\mu_{W^*}(\epsilon_{W^*,Y})$	0.34	0.33	0.14	0.13	0.48
Housewives' Price of Time ( $\bar{W}^*$ )	1.664	1.757	1.100	0.950	1.055
$\bar{W}^*/\bar{W}_H$	0.80	0.84	0.74	0.70	0.76
$\bar{W}^*/\bar{W}_W$	0.82	0.87	0.72	0.62	0.69

<sup>a</sup> Young children are three years of age or less.

<sup>b</sup> Given in percent.

of white married women exceeds that of nonwhites by 40–50 percent (the difference is even larger when one compares white women with no child younger than three years of age with the corresponding nonwhite group). Only part of the difference between these two means can be explained by income differences. The average income of a white family (wife's earnings excluded) exceeds that of a nonwhite family by almost 80 percent (\$6,732 vs. \$3,781). (See Table 1.) Income seems to have a more substantial effect on the price of time of white women than on the price of time of nonwhites (the exception being nonwhite women with young children). Computing the elasticity of the price of time with respect to income ( $\epsilon_{W^*,Y} = b_1(T/\mu_{W^*})$ ), the estimate in the case of white women is 0.27–0.34 while that of nonwhites is only 0.12–0.14 (see Table 3).<sup>21</sup>

<sup>21</sup> This difference in elasticities can be interpreted as

Even if one adopts the highest of these estimates, income can explain at most one-half of the difference between the white and nonwhite mean price of time. To explain the other half, one has to rely on variables whose effect on  $W^*$  has not been investigated in this study, such as family composition, and the age and education of the husband and the wife. For example, Table 1 indicates that the nonwhites are more heavily concentrated in the lower age and education groups. If age and education increase the productivity of the woman in the nonmarket as well as in the market sector, this difference should result in a lower mean value of time of nonwhites as compared with white women.

an increase in the sensitivity of the price of time to changes in income as income increases. It is difficult, however, to explain in this way the high value of  $\epsilon_{W^*,Y}$  observed in the case of nonwhite mothers of young children.

The attempt to examine the effect of young children on their mothers' value of time was only partly successful. I could not derive meaningful estimates of the parameters of  $f(W, W^*)$  for the case of white women with one child younger than three years of age, and the analysis must, therefore, be confined to the nonwhite group.<sup>22</sup>

The difference between the price of time of nonwhite women with one young child and the price of time of women with none is relatively small (6-8 percent). Given the small difference in family income of the two groups (about 2 percent), this difference would have been only slightly affected had we corrected our estimates for income differentials. There is no way of evaluating how this difference would have reacted to an adjustment for age and education. Mothers of young children are, naturally, concentrated in the younger and more educated cohorts. The differences in age composition and education composition tend to offset each other in their effect on the woman's market productivity (the potential wage of the two groups is almost identical). Thus, there is good reason to believe that an adjustment for age and education would not have changed the observed order of magnitude of the child effect.

Assuming  $\sigma_{W^*} = 0$  the estimate of the average price of time of housewives belonging to a given age-education-income group ( $\bar{W}^*$ ) equals the mean price of time of married women in that group ( $\mu_{W^*}$ ). To obtain an estimate of the average for the whole population one has to compute a weighted average of these estimates, the weights being the number of housewives

in each cell. The average  $\bar{W}^*$  must not necessarily equal the average value of  $\mu_{W^*}$  because of different weighting schemes. The estimate of  $\bar{W}^*$  usually differs from that of  $\mu_{W^*}$  insofar as the portion housewives constitute of married women varies from cell to cell.

When it is assumed that  $\sigma_{W^*} = 0$ , one has to compute (42) and (43) to obtain an estimate of the housewife's average price of time for each cell. Weighting these estimates by the number of housewives in each cell one obtains an estimate of  $\bar{W}^*$  for the whole population. Our estimate of  $\bar{W}^*$  are described in Table 3.

Assuming that all women belonging to the same cell expect the same wage rate (i.e.,  $\sigma_{W^*} = 0$ ), it is found that the housewives' average price of time exceeds their average potential wage rate by 14 percent when they are white, and by 22 percent when they are nonwhite. The white nonwhite differentials are explained by the somewhat higher estimate of  $\sigma_{W^*}$  for the nonwhite women, and reflect the different rates of participation resulting in different value of  $\bar{y}$ . The margins between the price of time  $\bar{W}^*$  and the potential wage rate  $\bar{W}_H$  are only a little higher if one compares nonwhite housewives with young children with housewives with none.

If one adopts the second assumption (i.e.,  $\sigma_{W^*} = 0$ ) the housewives' average price of time is expected to fall short of their average potential wage rate. The value of time of white housewives is found to be 80 percent of their potential wage rate while that of nonwhites is 74 percent. The margins for nonwhites with and without children are very similar (70 and 76 percent, respectively).

The preceding comparisons focused on the relationship between the price housewives assign to their own time and what is believed to be their wage expectations. A more readily available basis for comparison is the average wage of working women.

<sup>22</sup> One cannot derive any conclusions from the comparison of the estimate of  $\mu_{W^*}$  for all whites and that for whites with no young children less than three years of age since the former is not a weighted average of the estimates of  $\mu_{W^*}$  of whites with young children and  $\mu_{W^*}$  of whites without young children.

This average wage differs from what is assumed to be the housewives' average potential wage because of the different age and education composition of working and nonworking women.

There is only a very small difference between the average wage of working women ( $\bar{W}_w$ ) and that of housewives ( $\bar{W}_H$ ) both in the case of white and nonwhite women. However, since the former exceeds the latter in the case of nonwhites (by about 2 percent) but the relationship is reversed in the case of whites (the margin being less than 3 percent), the differential between the ratio of  $\bar{W}^*/\bar{W}_H$  of whites to nonwhites observed under the assumption  $\sigma_w = 0$  disappears when one uses as the basis of comparison the average wage of working women ( $\bar{W}^*/\bar{W}_w$  being 18–19 percent). On the other hand, these differentials widen if one assumes  $\sigma_{w^*} = 0$  ( $\bar{W}^*/\bar{W}_w$  for whites increasing to 82 percent and  $\bar{W}^*/\bar{W}_w$  for nonwhites dropping to 72 percent).

The effect of a change in the basis of comparison is somewhat more pronounced if one compares nonwhites with and without young children. The average wage of a nonwhite working woman with no young child is almost identical with that of a working woman with one young child. The average wage of a working woman exceeds the housewife's potential wage by 11–13 percent. The difference between  $\bar{W}^*$  and  $\bar{W}_H$  reported in the case of nonwhites (when it is assumed  $\sigma_w = 0$ ) is, therefore, cut by one-half when one compares  $\bar{W}^*$  with  $\bar{W}_w$ . On the other hand, the margins increase if one assumes  $\sigma_{w^*} = 0$ , the ratio of  $\bar{W}^*/\bar{W}_w$  falling to a level of 0.6–0.7.

#### V. Some Concluding Remarks

A common practice is to equate the value of time of housewives with that of working women. Given our estimates under two extreme assumptions this practice may involve an error of the magnitude

of close to 20 percent in the case of white housewives and an even larger margin of error in the case of nonwhites. One should realize that this margin varies with the housewife's characteristics (for example, her age, education, income, number and age composition of children). Its magnitude depends on the divergence of the wage rate of working women from the potential wage of the nonworking and the relationship between the housewives' average price of time and their expected wage. Thus, it seems that the possible error incurred in the case of nonwhite women is much larger, and may involve an overestimate of  $\bar{W}^*$  of up to almost 50 percent.

In another paper (1973), I applied very similar methods to estimate the value of housewives' time in Israel. The labor force participation rate of Israeli married women in 1969 (36 percent) is somewhat higher than the one reported for whites in our sample (32 percent). Assuming  $\sigma_w = 0$  the estimated coefficient of variation of the price of time distribution ( $\sigma_{w^*}/\mu_{w^*}$ ) is almost identical for the Israeli and white American women (14 and 13 percent, respectively). Consequently, the ratio of the mean price of time ( $\bar{\mu}_H$ ) and the average potential wage ( $\bar{W}_T$ ) is almost the same in the two groups (1.08 and 1.07, respectively). The income elasticity of  $W^*$  is somewhat higher for Israeli women (0.36 vs. 0.27).

The similarity in results is less pronounced if one opts for the assumption  $\sigma_{w^*} = 0$ . The ratio of  $\sigma_w$  to  $\mu_{w^*}$  is greater for American women than for the Israeli (0.24 vs. 0.14) resulting in a lower  $\mu_{w^*}/\bar{W}_T$  ratio for the first group (0.8 vs. 0.9). The estimate of  $\epsilon_{w^*}$  is still higher in the Israeli case (0.46 vs. 0.34).

The similarity of some of these results may be comforting but one has to bear in mind the limitations of our model. The assumption that the price of time is unaffected by changes in age and education is

clearly too restrictive. Attempts to remove this assumption according to the lines suggested in my earlier paper have proven to be unsuccessful. As shown by the comparisons of whites and nonwhites, and women with and without young children, the relaxing of this assumption is crucial for the understanding of the determinants of the price of time. The use of disaggregated data may offer a solution to this problem but may involve some other difficulties.

Finally, our procedure is based on the implicit assumption that work in the market and home production do not involve any direct utilities. Even casual observations would indicate that this assumption is wrong. Recognizing the shortcomings of these estimates one has to end this paper with an adequate warning: "Fragile! Handle (the estimates) with care!"

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# Household Utility Maximization and the Working Wife

By WENDY LEE GRAMM\*

There have been many studies on the labor supply of married women.<sup>1</sup> Typically, they find that the presence of young children in the household is an important factor affecting women's labor force behavior. Yet in many of these studies, the presence of children is not explicitly incorporated into the underlying theoretical framework. In this paper, I develop a model which incorporates children into the decision-making process. It is assumed that the household derives utility from commodities which are produced using time and market inputs.<sup>2</sup> In this model, the presence of a child affects production, and this influence varies with its age. Disaggregated data on over 400 households are used to test hypotheses about the influence of children on the woman's labor force behavior. The data, collected in a survey of married women teachers, are uniquely suited for this study—partly because there is much information not readily available in other bodies of household data, and partly because the sample

itself has many desirable characteristics (for the purposes of testing the hypotheses implied by this model).

## I. A Utility-Maximizing Model of the Household

In this model, the household maximizes its utility which depends on the amount of home-produced goods  $H$  consumed. Home goods are produced using inputs of time of the husband  $T_1$ , time of the wife  $T_2$  and/or market inputs  $X$ . The household faces a budget constraint which states that expenditures on market goods cannot exceed income (which equals property income  $rA$  and the labor incomes of the husband and wife). The household also faces a time constraint which states that the time spent per period at market work plus the time spent per period producing home goods must exhaust the length of the period (which is arbitrarily set at one). The problem can be stated as follows:

(1) Maximize  $U(H)$

subject to:

$$H = g(X, T_1, T_2, a_K, \tau) \quad K=0, \dots, L$$
$$rA + w_1(1 - T_1) + w_2(1 - T_2) - p_X X = 0$$
$$(1 - T_2) \geq 0$$

where  $a_K$  is the number of children between the ages  $K$  and  $K+1$ ,  $L$  is the age of the child when it leaves the household,  $\tau$  is the age of the household (the number of years since marriage),  $r$  is the interest rate,  $A$  is household assets,  $w_1$  and  $w_2$  are wages of the husband and wife, respectively, and  $p_X$  is the price of market inputs. The first relationship is the production function for

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<sup>1</sup> See, for example, Nedra Belloc, William Bowen and T. Aldrich Finegan, Glen Cain, Malcolm Cohen et al., Thomas Mahoney, Lucy Mallan, Jacob Mincer (1962a), and Richard Rosett.

<sup>2</sup> See Gary Becker and Reuben Gronau for a development of this model.

home goods, the second summarizes the budget and time constraints, and the third states that the wife may choose to spend all her time at home.<sup>3</sup>

In this model, the presence of children affects the household decision-making process by affecting the productivity of market inputs and nonmarket time in the production of home goods. Accordingly, the marginal products of inputs may differ for households with different numbers and age distributions of children. For example, compare two households identical in all respects except that one has no children and one has a single child age one year. The difference between the two households' marginal products of inputs in the production of home goods represents the effect that a one-year old child has on the household (relative to a household with no children). The effect of the aging of a child can then be represented by comparing the marginal products for a family with one child age two years with that same family with one child age one year. No specific assumptions are made here about the relative sizes of the marginal products of inputs for utility maximizing households with children of different ages. However, one would expect the marginal products of time and certain market inputs to be greater for households with children vis-à-vis childless households. One might also expect that for households alike in all respects other than the ages of the children, the marginal products of the husband's and wife's times are largest for households with very young children while the marginal product of market inputs is largest for households with older children.<sup>4</sup>

<sup>3</sup> Since the purpose of this paper is to derive the wife's labor supply behavior and not the husband's labor supply, it is assumed that the husband always spends some time at market labor.

<sup>4</sup> One might expect this to be so because time is essential to the attainment of utility from some commodities (like "childness" or "TV watching"). So the husband's

The age of the household, defined as the number of years since marriage, affects the productivity of the husband and wife in producing home goods. Economists often assume that specific on-the-job training raises the marginal product of labor in that job. Also, education makes the individual a more efficient producer and consumer. For similar reasons it is assumed here that with age the husband and wife acquire skills and experience which causes the marginal products of their time in the production of home goods to increase.<sup>5</sup>

The following are the necessary conditions for the maximization of utility.<sup>6</sup>

$$(2) \quad U_H g_X - \lambda p_X = 0$$

$$(3) \quad U_H g_{T_1} - \lambda w_1 = 0$$

$$(4) \quad U_H g_{T_2} - \lambda w_2 - \theta = 0$$

$$(5) \quad rA + w_1(1 - T_1) + w_2(1 - T_2) - p_X X = 0$$

$$(6) \quad \theta \geq 0; \quad = 0 \quad \text{when} \quad (1 - T_2) > 0$$

where  $U_H$  is the marginal utility of  $H$  and where  $g_X$ ,  $g_{T_1}$ , and  $g_{T_2}$  are the marginal

and wife's times are less substitutable for market purchased time and goods and have higher marginal products. As the children age and are more able to care for themselves (really as the children's ability to produce childness for the household increases) the marginal products of the adults' time in producing and consuming this commodity decline. See Arleen Leibowitz (1972) and the author (1974) for other discussions of this issue.

<sup>5</sup> See Leibowitz (1974) and Robert Michael for the effect of formal education on household decisions. Formal education tends to increase the quantity of labor supplied because it is market oriented. In other words, formal education tends to raise the productivity of labor in the market more than the productivity at home. The kind of education obtained with age is like job-specific training and increases efficiency in the production of nonmarket commodities. For example, homeowners may become expert handymen as they get older. See Mincer (1962b) for a discussion of job-specific training.

<sup>6</sup> The necessary conditions for the problem as it is set up in equation (1) contains another multiplier  $\lambda_2$  associated with the first constraint, the production function. This multiplier has already been solved out of the system of necessary conditions given here (the multiplier  $\lambda_2$  is equal to the marginal utility of home goods).

products of  $X$ ,  $T_1$ , and  $T_2$ , respectively. The interpretation of the necessary conditions is straightforward. Conditions (2)–(4) state that in the interior (when  $\theta=0$  and  $1-T_2>0$ ) the ratio of marginal utilities of  $T_1$ ,  $T_2$ , and  $X$  must equal the ratio of prices. Conditions (2)–(4) also reduce to the condition that the marginal products in producing home goods must equal the ratio of prices. Since the multiplier  $\lambda$  is the marginal utility of income, these conditions imply that for an interior solution the marginal utility produced by an hour of market work must equal the marginal utility produced with an hour of home time. Equation (5) restates the budget constraint, while (6) is the boundary condition which states that when the wife does not work in the market, the multiplier  $\theta$  is greater than zero. When this is so, (4) states that

$$(7) \quad U_H g_{T_2} > \lambda w_2$$

or when the marginal utility of an extra hour of home time exceeds the marginal utility of an extra hour of market work, the wife will not work in the market. When the wife is spending some time at market labor, then  $\theta=0$ , and these conditions say that the marginal utility of an extra hour of home work time just equals the marginal utility of an extra hour's pay.

The demand for the wife's home time can be derived from the necessary conditions (2)–(6) and is a function of wages, price, interest rate, household assets, household age, number of children of different ages, and parameters of the utility and production functions. The comparative statics for the interior solution are also derived by totally differentiating the necessary conditions and using Cramer's Rule. Some of the more important relations are discussed below:

(a) The sign of the income effect ( $\partial T_2 / \partial A$ ) may be positive or negative, depending on the signs and relative sizes of

the second partials of the utility and production functions. The degree to which market inputs are substitutes for time in the production of commodities is important in determining whether or not the wife desires more home time when assets increase.

(b) The effect of an increase in  $w_1$  or  $w_2$  on  $T_2$  depends on the sign and relative sizes of substitution and income effects. When the husband's wage increases, it causes his nonmarket time to be more expensive. In producing home commodities, the time of the wife or market inputs may be used in place of the husband's time. If time of the wife is substitutable for husband's time and if market goods are not good substitutes for time, then the substitution effect (of an increase in the husband's wage on the wife's nonmarket time) will be positive. If the income effect is positive or smaller than the substitution effect  $\partial T_2 / \partial w_1$  will be positive.<sup>7</sup> The effect of an increase in the wife's own wage on her nonmarket time depends on relative sizes and signs of the income and substitution effects (but the own substitution effect is negative due to second-order necessary conditions).

(c) The effect of children on the nonmarket time of the wife is the primary concern of this paper. Of particular interest is the effect of a change in the number of children age  $K$  in the household given by equation (8) where  $U_H$  is the marginal

$$(8) \quad \frac{\partial T_2}{\partial a_K} = \left[ -U_H g_{x a_K} D_{X T_2} - U_H g_{T_1 a_K} D_{T_1 T_2} - U_H g_{T_2 a_K} D_{T_2 T_2} \right] \div D$$

utility of home goods;  $g_{x a_K}$  is the change

<sup>7</sup> The income effect of an increase in wage on the nonmarket time of the wife may be positive when there are young children in the home, especially if one of the home-produced commodities is childness, a utility-providing output which takes inputs of time and children to produce. If households don't like children, the income effect may be negative since then the wife may go to work and hire a babysitter.



in the marginal product of input  $X$  due to a change in  $a_K$ ; and  $D_{X T_1}/D$  is a substitution effect between the wife's time and market inputs in the production of home goods.<sup>8</sup> The coefficients  $g_{T_1 a_K}$ ,  $g_{T_2 a_K}$ ,  $D_{T_1 T_1}$ , and  $D_{T_2 T_2}$  are similarly defined. It is expected that a household with a child age  $K$  will have larger marginal products of all inputs than households with no children (so  $g_{T_1 a_K}$ ,  $g_{T_2 a_K}$ , and  $g_{X a_K}$  are greater than zero). If the weighted own substitution effect ( $-U_{11} g_{T_2 a_K} D_{T_2 T_2}/D$ ) dominates (this may be due to a large value for  $g_{T_2 a_K}$ ) or if the wife's time is substitutable for other inputs, then  $\partial T_2/\partial a_K$  will be positive and the wife will spend more time at home.

The effect of the aging of a child can be derived from equation (8). If a child ages one year, then the effect on the nonmarket time of the wife would be equal to the effect of a one unit increase in  $a_K$  plus the effect of a one unit decrease in  $a_{K-1}$  or  $(\partial T_2/\partial a_K - \partial T_2/\partial a_{K-1})$ . We can thus derive how the labor supply behavior of the wife changes as the child ages.

(d) The effect of the age of the household on the nonmarket time of the wife is similar to the effect of children as described above. It is made up of two weighted substitution effects.

$$(9) \quad \frac{\partial T_2}{\partial \tau} = \frac{-U_{11} g_{T_1 \tau} D_{T_1 T_1} - U_{11} g_{T_2 \tau} D_{T_2 T_2}}{D}$$

I am assuming that  $g_{X \tau} = 0$ . The substitution effects are weighted by the change in the marginal products of time due to age (times the marginal utility of home goods). One would expect  $\partial T_2/\partial \tau$  to be positive implying that women of older families would tend to spend less time at market labor, *ceteris paribus*.

Elasticities of demand can be derived

<sup>8</sup>  $D$  is the determinant of the matrix of coefficients of the totally differentiated system of necessary conditions and  $D_{ij}$  represents the cofactor of the  $i$ th row and  $j$ th column of this matrix where rows and columns are indexed  $X, T_1, T_2, \lambda$ .

from the necessary conditions. Of particular interest is the wife's labor supply elasticity  $\epsilon_{h_2 w_2}$  which is derived from the elasticity of demand for her nonmarket time with respect to her wage  $\epsilon_{T_2 w_2}$ . The supply elasticity is:

$$(10) \quad \epsilon_{h_2 w_2} = -\frac{T_2}{1-T_2} \left[ \frac{w_2(1-T_2)}{Y} \epsilon_{T_2 Y} + \frac{w_2 T_2}{Y} \sigma_{T_2 T_2} \right]$$

where  $Y$  is full income,  $\epsilon_{T_2 Y}$  is the income elasticity of demand for  $T_2$ , and  $\sigma_{T_2 T_2}$  is the Allen partial elasticity of substitution. Equation (10) implies that the sign of the wife's labor supply elasticity depends on the relative sizes of the income and substitution effects. The size of the coefficient of elasticity depends on the amount of time the wife spends at market labor  $(1-T_2)$ , the size of the income elasticity of the wife's nonmarket time  $\epsilon_{T_2 Y}$  and the size of the elasticity of substitution in production  $\sigma_{T_2 T_2}$ . Furthermore, if the demand for the nonmarket time of the wife ( $T_2$ ) is larger for families with children, then the labor supply elasticity will be larger for families with children than for families without children, *ceteris paribus*.

In summary, the wife's labor supply decision (one minus the nonmarket time of the wife) is a function of the husband's and wife's wages, the ages of the children, household age, household assets, prices and the interest rate, and the parameters of the utility and production functions as given below:

$$(11) \quad h_2 = 1 - T_2 = h_2(w_1, w_2, A, a_K, \tau, p_X, \tau, \text{parameters of the utility and production functions})$$

Some of the expected signs of the partial derivatives of the labor supply equations are<sup>9</sup>

<sup>9</sup> Relations such as  $\partial h_2/\partial p_X$  are not discussed here since the labor supply equation was estimated using cross-section data and variables like prices are assumed to be the same for everyone in the sample.

$$(12) \quad \frac{\partial h_2}{\partial w_1} < 0$$

(if the substitution and income effects of  $w_1$  on  $h_2$  are negative or if a positive income effect is smaller than a negative substitution effect)

$$\frac{\partial h_2}{\partial w_2} ?$$

(also depends on the size of the positive own substitution effect of an increase in  $w_2$  on  $h_2$  relative to the income effect which may be positive or negative)

$$\frac{\partial h_2}{\partial A} ?$$

$$\frac{\partial h_2}{\partial \tau} < 0$$

$$\frac{\partial h_2}{\partial a_K} < 0$$

(for households with young children relative to households with no children).

In the following section, a linear version of the labor supply equation is estimated using data particularly suited for this analysis.

## II. Data and Estimation Procedure

The labor supply equation (11) was estimated using disaggregated cross-section data. The sample we used for this study is composed of 414 female teachers, substitute teachers, and women qualified to teach but not presently working. The information was collected in a survey conducted in 1970.<sup>10</sup> The women are married,

<sup>10</sup> The survey of working women was conducted by going to the schools and hiring a teacher to help distribute the questionnaires, explain the purpose of the project, and collect completed questionnaires (anonymous and returned to us in sealed envelopes). Substitute and nonworking teachers were reached via mail survey (names were obtained from the schools' administrations). See the author (1971) for a more detailed discussion of the survey.

living with their husbands, and most reside and teach in public primary schools in the northern suburbs of Chicago.<sup>11</sup> Our sample includes women of varying ages, with and without children, and with varying work loads. In this sample there are 249 women who worked full-time during the survey year, 115 worked part-time (substitute teaching), and 50 chose not to work at all during the year.

To estimate the labor supply of the wife, financial, demographic, and labor supply information was collected for each family. Since the sample is from a relatively homogeneous population in a small geographic area, it was assumed that all individuals face the same interest rate and prices. Because information on parameters of the utility and production functions were not available, these variables were omitted from our estimation.<sup>12</sup> Thus the only explanatory variables are the wage of the husband, the wage of the wife, ages of the children, household assets, and age of the household.

The measure of the amount of market work supplied by the wife ( $h_2$ ) that is used in the estimation is the proportion of the

<sup>11</sup> This sample has several desirable qualities. First of all, it is relatively homogeneous with respect to such variables as job conditions, taste for market work, and educational requirements for the job. Also, the labor supply decision (the desired variable) of married women teachers was then probably much closer to actual employment (the observed variable) than for married women in other occupations. The woman in this sample is much like the woman of our theoretical model: she knows the wage she can earn by working (detailed salary schedules are readily available and actual salaries of the teachers are published in local newspapers); she can get a job if she decides she wants to work; the cost of job search is negligible; she knows the conditions under which she will be working; and she has more freedom to choose the number of hours she works because she can become a substitute teacher. A teacher in this area can register to substitute in several school districts if she wishes and is not penalized for not working every time she is called.

<sup>12</sup> As long as the omitted variables are not systematically related to the included variables then the least squares estimates of the coefficients will be unbiased.

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full-time load that she worked in 1969. The variable  $h_2$  is thus continuous and can assume any value from zero to one. There are observations where  $h_2$  lies between zero and one since substitute and former teachers were also surveyed. Information was obtained about the number of days per week that a substitute taught on the average in 1969 and this was compared with the amount a regular teacher worked to obtain the proper measure of  $h_2$  for a substitute teacher. The measure used for the wife's and husband's wages is the amount they could earn (in thousands of dollars per year) if they worked a full load every day. For substitutes this is the amount she could earn if she substituted all day every day.<sup>13</sup> Information on the value of present assets and the age of the household was given in the questionnaire. Understandably, many women found it difficult to estimate the value of household assets so we expect that these figures are somewhat inaccurate.

In order to separate out the effect of each child on the labor supply behavior of the wife, we allow  $a_K$  to be equal to zero or one only. For families with more than one child, there will be more sets of age variables, one for each child. These are really dummy variables, defined as follows:<sup>14</sup>

$$a_K^i = \begin{cases} 1 & \text{if the } i\text{th child is } K \text{ years old} \\ 0 & \text{otherwise} \end{cases}$$

A child is  $K$  years old if it falls into a three-year age bracket. For example,  $a_{11}^1$  denotes the first child who is 10, 11, or

12 years old,  $a_2^2$  denotes the second child who is 4, 5, or 6 years old. There are seven age dummies to represent the ages of the first and second child (1-3 years, 4-6 years, 7-9 years, 10-12 years, 13-15 years, 16-18 years, and greater than 18 years old). Since no family in our sample had a third child older than 18 years old, there are only six age dummies for the third child. We have five dummies to represent the age of the fourth child and four for the fifth child.

Using ordinary least squares, the work of the wife (the proportion of the full-time load she worked) is regressed on her wage, her husband's wage, household assets, age of the household, and the children's age dummies. The general form of the equation estimated is:

$$(13) \quad h = c_0 + c_1w_1 + c_2w_2 + c_3A + c_4\tau \\ + b_2^1a_2^1 + b_3^1a_3^1 \dots + b_2^2a_2^2 \\ + b_3^2a_3^2 + \dots + u$$

The regression coefficient of the age dummy  $b_K^i$  measures the effect that the  $i$ th child (age  $K$ ) has on the wife's supply of labor relative to the omitted group, *ceteris paribus*. When the whole sample is used in the estimation, the omitted group is the group of families with no children. For example,  $b_2^1$  is a measure of the difference between the work loads of a woman with one child age 2 years and a woman with no children, holding all else constant. The estimates of  $b_K^i$  can be plotted against  $K$  to see the effect of the aging of a child on the labor supply of the wife.

### III. Work Patterns of Married Women Teachers

The estimation was carried out two ways. First the labor supply equation (13) was estimated using the whole sample. The variable  $h_2$  was then estimated three more times using subsamples of one-child, two-

<sup>13</sup> For substitutes, this figure is usually much lower than the wage she could earn as a full-time teacher. This can be expected to influence our results in the following manner: If a sample contains both full-time and part-time teachers, the coefficient of  $w_2$  would be overstated. Likewise, the measured own-wage supply elasticity would overstate the true elasticity. This problem as well as an attempt to measure the extent of this bias is discussed more fully in Section III.

<sup>14</sup> See Arthur Goldberger, pp. 218-27, for a discussion of the use of dummy variables in regressions.

child and three-child families.<sup>15</sup> Sub-samples were used to see how labor supply profiles were changed by the presence of other children in the family. Finally, additional equations were estimated to obtain more information on the effects of children on  $h_2$  as compared to the effects of the aging of the household (or the wife).<sup>16</sup>

Table 1 lists the regression results for the four samples. In Figure 1 the estimated age dummy coefficients are plotted for the first child only.

Overall, the variables used are quite successful in explaining the variation in the work loads of the teachers. The coefficient for the wage of the husband has the predicted sign and is statistically significant. The coefficient for the age of the household is negative and statistically significant. The estimated coefficient for the household's present assets is negative but is not statistically significant. Since it was difficult for many women to estimate the value of the household's assets and since value of household assets can be expected to be correlated with wages and the household's age, we do not reject the hypothesis that assets affect the labor supply decision of the wife on the basis of these results. More accurate estimates of household

<sup>15</sup> The omitted variable for one-child families is  $a_2$ ; and  $a_2$  and  $a_3$  are omitted for two-child families. The omitted class for three-child families is made up of families whose first two children are in the 5-year old age bracket and whose third child is in the 2-year old age bracket. This means that the coefficients for the whole-sample age dummies are not directly comparable with the coefficients of the subsample age dummies. For example, in the whole-sample regression, the effect of having a 5-year old child instead of no children is  $-.398$ . The effect of having a 5-year old child instead of a 2-year old first child is equal to the difference in the coefficients  $[-.398 - (-.525)] = +.127$ . This figure can be compared to the results of the regression using the subsample of one-child families where the effect of having a 5-year old child instead of a 2-year old child (the omitted class) is 0.87.

<sup>16</sup> In this sample, the simple correlation coefficient between the age of the household and the age of the wife is .930 and substituting the age of the wife for the age of the household in our equations did not materially affect our results.

assets than we have here are necessary. Our theory did not give us any predictions about the sign of the wife's own wage coefficient. However the estimated coefficient is positive and significant. This result may reflect the choice set that a woman in this sample faces rather than the response to the change in  $w_2$ . A woman in this sample can choose to work full-time, part-time, or not at all. If her choice is not to work or to work a full-time load, her hours are determined. If she chooses to be a substitute teacher, however, she is able to vary her work load as she wishes. The wage she earns as a substitute even if she works every day is considerably lower than the wage she could earn as a full-time teacher (even as a full-time teacher at beginning wages, see fn. 13). Substitute teachers may thus be paying a premium for the privilege of working less than the full-time schedule. So the direction of causality may not be that substitutes work fewer hours because the wage is low. Rather the wage is low because they chose to substitute. In order to test this hypothesis, the regression was run using the subsample of substitute teachers. The estimated coefficient of the wife's wage was small and not statistically significant.<sup>17</sup>

One of the more significant results is that the estimated coefficients of the age dummies for each child in most cases increases as the age of the child increases. This implies that for this group of women, the marginal product of women's time in producing home goods is largest for households with young children.

Other results are summarized as follows. The whole-sample results indicate that the presence of the first child seems to be very important in explaining the labor supply

<sup>17</sup> There is an additional problem in interpreting this coefficient because the variation in wages for substitute and nonworking teachers is small for this sample. All substitute teachers in a school district make the same wage.

TABLE 1—ESTIMATED REGRESSION COEFFICIENTS: WHOLE SAMPLE, ONE-CHILD FAMILY, TWO-CHILD FAMILY, AND THREE-CHILD FAMILY RESULTS

Variables	All Families	One-Child Families	Two-Child Families	Three-Child Families
Wage of Husband	-.011 <sup>c</sup>	-.005	-.013 <sup>c</sup>	-.008
Wage of Wife	.079 <sup>a</sup>	.097 <sup>a</sup>	.080 <sup>c</sup>	.059 <sup>b</sup>
Household Assets	-.0003	-.001	.000003	-.0001
Household Age	-.006 <sup>c</sup>	.007	.004	-.033 <sup>b</sup>
First Child:				
age				
2	-.525 <sup>c</sup>			
5	-.398 <sup>c</sup>	.087	.142	
8	-.284 <sup>c</sup>	.189	.332	-.101
11	-.152 <sup>b</sup>	.085	.436 <sup>b</sup>	.143
14	-.139 <sup>b</sup>	.098	.357	.243
17	.144 <sup>a</sup>	.561 <sup>b</sup>	.503 <sup>b</sup>	.338
GT18 <sup>d</sup>	.048	.281	.434	-.032
Second Child:				
age				
2	-.074			
5	.036		.020	
8	.062		-.017	.212
11	.035		.034	.042
14	.013		.075	.172
17	-.063		.067	.226
GT18	.003		-.103	.864 <sup>a</sup>
Third Child:				
age				
2	-.138			
5	-.255 <sup>b</sup>			-.036
8	-.046			.076
11	.027			.318
14	.086			.442
17	-.214			-.007
Fourth Child:				
age				
2	-.063			
5	-.317 <sup>c</sup>			
8	-.166			
11	-.106			
14	.123			
Fifth Child:				
age				
2	-.217			
5	.083			
8	.380 <sup>b</sup>			
11	-.189			
Constant	.423	-.309	-.230	.345
R <sup>2</sup>	.706	.666	.709	.756
F	27.691	8.785	11.112	5.535
Sample Size	414	55	90	54

<sup>a</sup> Regression coefficient statistically significant at .90 level of confidence.

<sup>b</sup> Regression coefficient statistically significant at .95 level of confidence.

<sup>c</sup> Regression coefficient statistically significant at .99 level of confidence.

<sup>d</sup> GT18 denotes greater than 18 years.

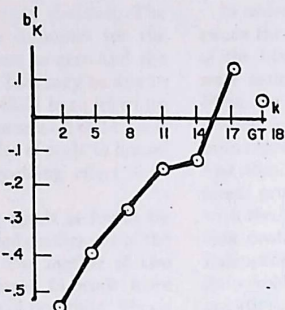
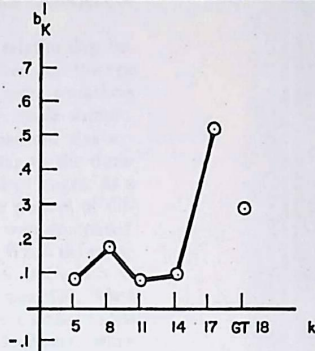
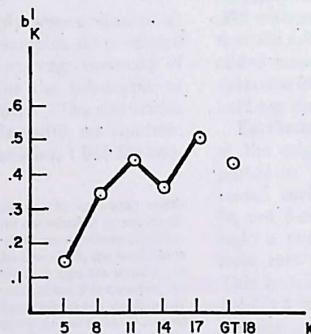
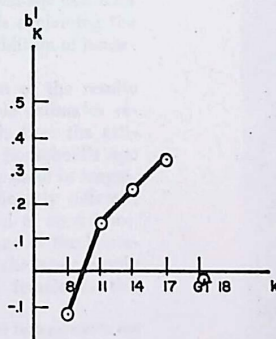
WHOLE SAMPLE ESTIMATESONE-CHILD FAMILY ESTIMATESTWO-CHILD FAMILY ESTIMATESTHREE-CHILD FAMILY ESTIMATES

FIGURE 1. PLOTS OF ESTIMATED COEFFICIENTS OF AGE DUMMIES FOR FIRST CHILD

decision of the wife. All coefficients except  $b_{17}^1$  and  $b_{\sigma T18}^1$  are significantly different from the omitted class at at least the .95 level of confidence. The effect of the aging of this child is also marked.<sup>18</sup> The second child does not seem to have a large effect on the wife's labor supply decision. The coefficients of the age dummies for the second child are all close to zero and the  $T$ -values are all small. This may be due to the fact that the first child has picked up some of the effect of the second child. Or it may be due to economies of scale to housework or a learning-by-doing effect with respect to child care.

Another interesting result is found by comparing the estimated coefficients of the different subsamples. The mother of two or three children returns to work more quickly than a mother of one child. This is not surprising since mothers of large families may respond to the increased need for income by returning to work while her children are still young. This rapid increase slows down (there is a "flattening out") when the first child is older perhaps because of the presence of the younger children.

Elasticities of supply were evaluated at the mean for the subsamples. As predicted by the theory, the own-wage elasticity of supply is smallest for the subsample of families with no children. (The elasticities were .610 for families with no children, 1.473 for one-child families, 1.025 for two-

child families and .728 for three-child families.)<sup>19</sup> Our theory does not provide an explanation for the negative relationship between the number of children in the household and the size of the coefficient of elasticity.

In order to explore the relationship between the ages of the children and the age of the household, several more equations were estimated using the whole sample. First, the age of the household was expressed as dummies, similar to the dummies representing the children's ages. As a first step, the explanatory powers of different groups of variables were compared, with the following results. When the equation contained only wages and assets as independent variables,  $R^2$  was .520. When household-age dummies were added to the equation,  $R^2$  was .550. However, when children-age dummies were added to the equation in place of the household-age dummies,  $R^2$  was .700. Thus the coefficient of partial determination (partial  $R^2$ ) or relative net contribution of the household-age dummies was .062 with an  $F$ -ratio of 2.600.<sup>20</sup> This is to be compared with the partial  $R^2$  for the children-age dummies of .375 with an  $F$ -ratio of 7.655. This implies that the addition of children-age dummies added much more towards explaining the variation in  $h_2$  than the addition of household-age dummies.

Furthermore, inspection of the results of the original full sample estimates reported in Table 1 reveals that the estimated coefficient of the household's age ( $\tau$ , not dummies) though small in magnitude is nonetheless significantly different from zero at the .99 level of confidence. This indicates that the age of the household is a factor affecting the labor supply decision of the married female in this

<sup>18</sup>  $T$ -tests were performed on the estimated coefficients of the age dummies to see whether or not coefficients representing the  $i$ th child are significantly different from each other. For the first child, the coefficients of dummies representing adjacent ages are usually not significantly different from each other. For example, the effect of the two-year old first child is not significantly different from that of the five-year old child. Dummies for nonadjacent ages, however, are generally significantly different from each other at the .95 level. This lends further support to the view that the effect of a child on the wife's supply of labor does indeed depend on his age. The age effect is not as strong for the other children.

<sup>19</sup> Since all subsamples included both substitute and full-time teachers, these elasticities may be overestimated.

<sup>20</sup> See Goldberger and Emanuel Melichar.

sample and this factor is indeed distinct from the effect of the various ages of her children.

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"The American Economic Review" , Sept. '73

## The 1973 Report of the President's Council of Economic Advisers: The Economic Role of Women

By BARBARA R. BERGMANN AND IRMA ADELMAN\*

The 1973 Economic Report of the President devotes an entire chapter (ch. 4) to the economic role of women in the United States. In this chapter, the Report recognizes that economic discrimination against women exists and, by the length and thoroughness of the analysis describing its dimensions and consequences, implies that such discrimination constitutes a serious economic (and social) problem. The Report does not attempt to minimize the extent to which job segregation, earnings differentials, higher unemployment rates exist, and the lack of improvement in each component over the last few decades.

As economists, we are particularly pleased to have the official imprimatur of an Economic Report on the view that discrimination does indeed exist. Some economists have the tendency to minimize the importance of nonpecuniary forces in influencing decisions made within the firm, and have been reluctant to admit the possibility of discrimination unrelated to real or perceived productivity differences. We believe that a proper analysis of discrimination is yet to come; such an analysis will have to fuse elements of economics, sociology, psychology, and history. Employers do refuse to hire women for certain occupations. Instead they hire men exclusively and pay them more than they would have to pay women of equal ability.

The court records are now full of such cases,<sup>1</sup> but such data will never be explained on the basis of a model which includes in the objective function of the employer only monetary profits. Nor can models which assume that employers' decisions about hiring are based on inborn, unchanging, unexplained "tastes" do justice to the social forces, both internal and external to the firm, which bear on such decisions.

Specifically, it is well known that the average woman college graduate who works full time all year ends up with about the same income as the average male high school dropout. The gross earnings differential works out to be between 35 and 57 percent, depending on the data base used to make the calculation. The Report puts the differential due to discrimination at about 20 percent, but this seems low. In a recent article, Isabel Sawhill reviewed seven econometric studies of male-female earnings patterns. In six of them,<sup>2</sup> the differences which could be attributed to discrimination were above 29 percent and ranged up to 43 percent. The seventh study<sup>3</sup> estimated the difference which might be attributable to discrimination as 12 percent, but arrived at this figure by classifying as nondiscriminatory the differences in the distribution of men and women among detailed occupations. Since

<sup>1</sup> For a plethora of case materials see K. M. Davidson, R. B. Ginsburg and H. H. Kay.

<sup>2</sup> See J. Morgan et al., Victor Fuchs, M. S. Cohen, L. E. Suter and H. P. Miller, R. Oaxaca, Sawhill.

<sup>3</sup> See Henry Sanborn.

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TABLE 1—EMPLOYMENT BY SEX IN OCCUPATIONS CLASSIFIED BY EXTENT OF WOMEN'S REPRESENTATION IN 1960

Occupations in which women were (in 1960)	(thousands)					
	1960			1970		
	Women	Men	Total	Women	Men	Total
Underrepresented (0-25%)	2,110	31,231	33,341	3,315	32,436	35,751
Well represented (25-45%)	3,503	6,332	9,835	4,470	7,546	12,016
Overrepresented (45-100%)	15,394	5,863	21,257	20,670	6,930	27,600
Total	21,007	43,426	64,433	28,455	46,912	75,367

employers will typically restrict certain jobs to men and since this restriction is a principal mode of discrimination, a major part of the difference in occupational distribution must be classed as due to discrimination. The fact that women in the past have not trained for or applied for such jobs has been due more to women's realism about the prospects for payoff of such training or applications than to women's voluntary embrace of a benign "role differentiation."

The Report places a great deal of emphasis on the fact that women of a given age have up to now averaged less work experience than men of that age. This emphasis on work experience would be justified if experience for women meant the same as experience for men, but, unfortunately, it does not. Women typically are relegated to jobs in which experience adds little to productivity. Consider the newly hired junior executive and his newly hired secretary. They both may have gone to the same college, got the same grades, and even have majored in the same subject. But, for him, experience will mean learning, increased responsibilities, increased contacts, increased self-realization. In her case, it is likely that the development of work skills will have ceased in six months. The Report documents a strong trend towards increase in labor market attachment in women of child-bearing age;

this trend will do little good in decreasing the earnings gap unless occupations are desegregated.

The difference in earning power between men and women is an important contributor to the incidence of poverty and welfare dependency in this country. In 1971, 40 percent of families "with female head" were classified as poor as compared to 7 percent of families "with male heads."<sup>4</sup> The wages offered to working women (particularly Black women) frequently provide incomes close to or below the amounts welfare mothers get out of welfare.

With respect to job segregation, the Report indicates (on the basis of an analysis of the proportion of women in 197 occupations) that women tend to be concentrated in "women's occupations," and that there has been only a very small change in the direction of less segregation between 1960 and 1970. We have retabulated the 1960 and 1970 Census data by occupation given in the Report in a way which shows quite graphically the continued occupa-

<sup>4</sup> Some of the families with male head are entirely supported by women, so the difference between 40 and 7 percent understates the effect of low earnings for women on poverty incidence.

<sup>5</sup> The quotation marks in this sentence convey our disagreement with the Census Bureau's use of the term "head." Census cannot mean by it "highest paid worker" since any family including a husband is classed as being "male headed" regardless of his earnings. They must mean "family boss."

tional segregation of women (Table 1). In 1960, 73.3 percent of the women workers were in those occupations in which (in 1960) women were grossly overrepresented; in 1970 the proportion was 72.6 percent. The Report's index of occupational segregation, computed somewhat differently, also changed very little. However, this fixity of the degree of segregation meant a deterioration in the position of women, since in 1970 women constituted a greater proportion of the labor force. In 1960, the women in occupations in which women were overrepresented made up 23.9 percent of the labor force. By 1970, the share of women in these occupations to the total labor force had advanced to 27.4 percent. These occupations were already relatively overcrowded in 1960, and as a result, productivity (and wages) were relatively low.<sup>6</sup> This increase in the relative size of these occupations probably increased the amount of overcrowding and further increased the gap between productivity in "men's" and "women's" occupations. This is corroborated by the decrease between 1956 and 1969 in the ratio of female to male earnings (from 63 percent to 59 percent), a large part of which is due to a relative decline in wages of female clerical workers.

The Report documents the fact that women have generally higher unemployment rates than men and that this differential has been more pronounced in recent years. It ties the worsening trend to the relatively large increase in the labor force participation of women. We agree that the increase in labor force participation rate for women is a part of the cause but not for the reason given in the Report.

<sup>6</sup> The number of men in occupations where women are overrepresented increased also. This is not inconsistent with the view that these occupations are overcrowded. An occupation which a college graduate woman cannot leave because of limited opportunities elsewhere may look relatively good to a male high school dropout.

There emphasis is placed on the fact that a person entering the labor force necessarily has a spell of unemployment while looking for a job. While this is true, the length of such spells and thus the unemployment rate is influenced by the number of job slots for which women are considered eligible as compared with the number of women in the labor force. In our view, the unemployment problem of women has worsened relative to the unemployment problem of men for the same reason wage differentials have increased: because of the segregation of women into "women's" occupations which have become relatively more overcrowded due to the relative increase in the female labor force.

The Report also indicates that quit rates and layoff rates are higher for women than for men. The issue of high turnover among workers is one in which cause and effect are hard to disentangle. The common view is that women have high turnover and enter and leave the labor force more frequently than men because of "their (sic) home responsibilities." In fact, of course, women are consigned for the most part to jobs that have very little interest, opportunity, or pay. Typically, women's jobs are also those for which there is no penalty for high turnover; whether one stays or whether one quits and gets another such job immediately or after an interval, the results in terms of pay and advancement remain much the same. Men who happen to be in this kind of job also have high turnover. Women's relatively high quit rates (2.6 percent per month as opposed to 2.2 percent for men, uncorrected for occupational differences) are seen by some as justifying the exclusion of women from good jobs and by others as an effect of their exclusion. Some may argue that women will have to get over their "lesser attachment to the labor force" before better jobs will open to them, and others may argue that employers will have

to open better jobs to women before such improvements in women's turnover can be expected. In fact, these two things will have to occur simultaneously.

The Report gives currency to the recently prominent view that a high turnover rate among women is important in explaining their higher unemployment rates. This view derives, in our opinion, from a misinterpretation of the undoubted fact that all unemployed persons have a history of being separated from a job or entering the labor force. Both turnover and the balance of supply and demand for a group's services affect its unemployment rate, but the latter factor is likely to be of far greater importance than the former.<sup>7</sup>

There are, in the Report, a number of instances which we feel reflect a great deal of sociological conservatism. The treatment of paid work outside the home is an example:

Women work outside the home for the same reason as men. The basic reason is to get the income that can be earned by working. Whether—for either men or women—work is done out of necessity or by choice is a question of definition. If working out of necessity means working in order to sustain biologically necessary conditions, probably a small proportion of all the hours of work done in the United States, by men or women, is necessary. If working out of necessity means working in order to obtain a standard of living which is felt by the worker to be desirable, probably almost all of the work done by both men and women is necessary. [p. 89]

This passage, while clearly reflecting liberal intentions, misses some very important reasons why women (and men) work. They work not only to contribute to the family's funding for goods and services, but for greater personal autonomy in spending, for status inside and outside the

family, to occupy themselves in an interesting way, to meet people, to have the excitement of being in a contest for advancement, to reduce the amount of housework they do, and to get away from spending all day with their children. The jobs most women now have tend to fulfill these desires to a less satisfactory extent than the jobs men now have, but they frequently fulfill them better than staying home would.

A woman's work also reduces her own financial uncertainty. A working woman whose husband dies or whose marriage breaks up is in a far better economic position than a similarly bereft housewife in terms of experience, entree, contacts, work habits, and asset ownership. In this day of unstable marriages, a woman who refrains from working during marriage is taking a risky position with her own financial future and that of her children. One year after divorce only 38 percent of ex-husbands are in full compliance with court-ordered child support payments. After five years, the figure drops to 19 percent.<sup>8</sup>

One of the reasons given in the Report for women's greater unemployment, turnover, and lower wages is that, "A wife seldom is free to migrate to wherever her own prospects are best" (p. 99). This statement represents prejudicial past practice and is not necessarily the way things will be in the future. Although casual empiricism is our only source of data on this, it seems to us that the practice of considering only the man's career is far less prevalent than it used to be. The economic problem of couples with specialized job requirements is not really going to be an easy one to solve. One possibility for professional people is geographic mobility early in life, with a postponement of marriage until the person has settled into the slot he or she is

<sup>7</sup> See Bergmann for a more extended discussion of this issue.

<sup>8</sup> See K. Eckhard.

willing to occupy from then on. A second is lessened mobility throughout life, which could not necessarily be to the detriment of the quality of life in this country. A third is the removal of institutional barriers to joint employment. A fourth is the couple's agreement to move to a location where the partner who is weakest in the labor market has the best chance.

Along a similar vein, the Report assumes that when women have children there is no alternative but to drop out of the labor force for a number of months or years. The present authors themselves are exceptions to this "rule." Speaking of those higher income women who do drop out, the Report notes "a considerable sacrifice of earnings" and infers "that these women have therefore placed a very high value on the personal attention they can give their children" (p. 107). Here again we would argue that it is unfruitful to analyze decisions concerning child rearing as being based on unchanging internalized tastes. The appearance of Betty Friedan's book seems to have lowered by quite a lot the "value on the personal attention (women) can give their children." Some women now believe that a lower quantity of personal attention measured in terms of time may increase the quality of that attention to the gain of both children and their parents.

One outstanding omission in the Report is any discussion of changes in the distribution of household tasks between husband and wife, an issue which surely goes to the heart of the women's liberation movement.

The Report asserts there is no practical way to assign a market value to the unpaid work performed at home, subject it to income tax, and thus to tax it comparably with other income and so remove the bias in favor of unpaid work at home. This is quite untrue. The new deduction for paid child care is precisely a move to treat paid and unpaid work similarly. (If domestic work is performed by a family member on

an unpaid basis, the value of the service is automatically "deductible," since it is not reported as income.) A deduction for salaries for all paid domestic work by non-family members would seem to be the logical extension. If it is argued that this would favor the rich, then the deduction could be reduced for higher income groups and/or a maximum put on the size of the deduction, and further might be made contingent on all family adults being in the labor force or at school.

In discussing policy with respect to employment discrimination, the Report mentions the many Titles, Acts, and Executive Orders which mandate an end to unfair employment, promotion, and pay practices. It fails to mention that enforcement efforts have been almost nil, despite the fact that very few if any firms, universities, or even government offices are in compliance. What enforcement efforts have been made have raised up loud cries of reverse discrimination.

The present authors are firmly opposed to reverse discrimination and believe it unnecessary and undesirable. Given a fair shake, there is no doubt in our minds that women can make it to full equality with men in the job market. The problem, as we see it, is one of how to implement the transition to "sex-blind" hiring practices, in the presence of prevalent conscious and subconscious discrimination and role casting (on both sides of the "hiring hall"). In this context, there is much to be said for sensibly administered hiring goals of a statistical nature in preference to mere employer statements of good intentions. Naturally, we do not mean a 50 percent ratio across the board. If, for example, women constitute 35 percent of those who by objective criteria qualify for a given rung of an occupation, they should have approximately 35 percent of those jobs, especially in large firms whose very size makes it possible to assume that depar-

tures from the average cannot be explained on purely statistical grounds.

To summarize, the chapter of the President's Economic Report on the economic role of women is a creditable coverage of the data, of the problems, and of the issues. It touches almost all the bases one would expect. What would have been welcome and what is missing is a rather more open view of what the problem is, and what the future possibilities are for changing the economic and social role of women. While painting an accurate, reasonably bleak picture of existing reality, the Report tends to underestimate the possibilities and need for social change, and to underemphasize the role of noneconomic forces in having brought about the current situation. Almost absentmindedly, it ignores the transformations in social relations and attitudes, and in economic practices which seem to be occurring and which must accelerate if significant change is to occur. Unfortunately also, the Report suggests very little by way of positive programs.

We must also point out that, however much we are pleased about the attention given to women's problems in the President's Economic Report, we deplore the fact that the Council has apparently reduced its concern in the social area more generally. The issue of unemployment, which by legislative history should be the Council's major concern, is given explicit attention in two passages which together occupy about two pages in the Report. One sentence is as much as we could find devoted to the economic problems of

Blacks. Poverty has disappeared as a subject of the President's economists' concern. We can only hope that next year's Report will show that this omission is temporary.

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# The Indian Equivalent of <sup>(DIS)</sup> The Economist

ECONOMIC AND POLITICAL WEEKLY

September 14, 1974

## Labour Value of the Housewife's Work

Wandana Sonalkar

SEVERAL welfare states in the West pay out family allowances. Among them is Britain where since 1949 a weekly sum has been payable by the state to every mother towards the maintenance of her children. This sum is to be collected by the mother and is expected to provide security against irresponsible husbands, especially in low-income families. In 1972, the Conservative government, in the course of a series of measures attacking the income of the low-paid worker, proposed to transform this allowance payable to the mother into a tax credit for the wage-earning member of the family. The proposal was withdrawn following women's demonstrations of protest. The campaign for the continuance of the family allowance was greeted with abuse by many liberal men: "hysterical", they don't understand the nature of the welfare state", etc. However, the campaign did succeed in protecting the right to a measure of security for many women in a society where the family structure is slowly disintegrating and leaving them and their children most vulnerable.

This campaign is mentioned because it serves to introduce the attempt, at about this time, to develop an economic analysis of the function of housework in capitalist society. This analysis led to a most invigorating debate within the women's movement and eventually to the first steps towards an extension of the Marxist method to the problems of women. Selma James in Britain and Mariarosa della Costa in Italy examined the working class family and asked the question: what contribution does work done in the home of a worker make to the creation of value in the capitalist economy? Their question is relevant and important. We have seen that the investigation of the contradictions within the bourgeois family had led feminist theorists to a dead end. Also, many women in the movement were beginning to be guiltily aware that working class women had not hitherto played any part in it.

Why was this so? Some tried to do away with the problem by quoting Engels: "... among the proletariat ... all the foundations of classical monogamy are removed. Here, there is a complete absence of all property, for the safeguarding of which, monogamy and male domination were established. Therefore, there is no stimulus whatever here to assert male domination". The

quotation is not quite satisfactory as it is clearly observable that there is male domination in the working class family as well as in other families. The wives of many workers do not go out to work and even those who do still bear the major responsibility for housework and child rearing. These household functions do not bring them into direct confrontation with the capitalist class. The nature of their labour remains private and isolated. And so their political awareness tends to lag behind that of their husbands and their attitudes are prone to the same kind of misifications as those of their bourgeois sisters.

### UNPAID LABOUR AT HOME

Proceeding from these bases, James and della Costa set out to define the economic function of housework in the proletarian family. Housework, they argued, is unpaid labour which contributes to the subsistence and productivity of the labourer. Hence, it contributes to the formation of surplus value. Traditional economic theory, serving as it does to obscure the actual social relations between people, does not recognise that value is created in housework. Therefore, in order to make women and the working class aware of the true nature of these relations, the women's movement must put forward the slogan: "Wages for Housework". It must use the method of strikes, i.e. the withdrawal of women's labour in the home, in order to press for wages. Such strike action would hit not only at the men who act as agents in propagating the mystifying ideology, but at the capitalist system also.

The argument was a seductive one. But attempts to organise the proposed strike action failed. And shortly afterwards, a criticism of this theory was most fully presented in a paper by Jean Gardiner at the Conference of Socialist Economists in London last year. Gardiner argues that in addition to being merely economist the wage demand is based on an incorrect interpretation of the economic role of women's household work. And even if it were possible to organise such a struggle, it would not hit at the capitalist class but at the men in the home.

The work done in the home by the wife of the worker certainly contributes to his standard of living; this becomes clear through comparing the life of the married and the unmarried wage

worker. But how exactly does it benefit the man's employer? Merely to assert that it is unpaid labour and therefore contributes to the formation of surplus value does not contribute to understanding the situation. Gardiner uses the analogy of the urban labour force in some West African economies where the labourer employed in capitalist enterprises in the towns, commutes daily from his rural family homestead which provides him with food and his basic necessities. (This may also be the case in some parts of India.) Thus his wage can remain very low. And even that meagre wage is spent mainly on the purchase of manufactured goods. The pre-capitalist sector of the economy thus looks after the subsistence and reproductive needs of the worker and the wage he earns goes back into providing a market for the capitalist sector. This relationship between the capitalist and pre-capitalist sectors helps to keep wages low and so contributes to increasing the rate of exploitation and surplus value.

The West African analogy is instructive in exposing the household as a pre-capitalist sector within the capitalist mode of production. Capitalist laws of value do not operate in this sector. The housewife is not paid a wage. Underemployment in the household manifests itself not only in the fact that much of the housewife's labour is spent on 'unnecessary' tasks, but also in that during periods of near-full employment such as the Western economies have experienced since the Second World War, extra labour is obtained by drawing more women into the working force. But even then female wage labour is usually employed in the most repetitive types of work or work requiring some manual dexterity. These are the lowest-paid jobs and even where legislation for equal pay for equal work has been passed, this division of labour has preserved the role of women's earnings as merely an addition to the housekeeping budget. Thus even where women are employed as wage labour they are relegated to a secondary, 'housekeeping' role. That this division of labour is not the outcome of any biological limitation in women's capacity to work is proved by the fact that during both the World Wars large numbers of women worked partially efficiently in traditionally 'male' jobs including supervisory work. At the end of the Wars, the men's trades unions protested in order to ensure that they would not have to face female competition in their jobs.

To carry the analysis further, the economic basis of sexual discrimination within the family is similar to the contradiction between the urban proletariat and the poor peasant. But to understand this contradiction within the working class family, much more work must be done on the effect of the existence of the reserve army of unemployed female labour on the wages of male workers, on the pattern of employment of women in the labour force, on the

special problems of organisation of female workers in industry. Then, perhaps, the women's movement will be able to awaken the working class housewife to her role in the system — a system which exploits both her and her husband. That these problems have been stated and are being faced as the outcome of activity within the women's movement affirms the movement's historical importance.

ing divides and have by and large left the working class of Britain apathetic to the question. The bi-partisan policy of co-operation between Labour and Conservative has been facilitated in this climate of opinion. And yet over the last year things have changed. The bi-partisan front has been able to get away with murder, literally. British soldiers have been killed in return and the pain of this the British working class feels acutely. Increasingly there have been desertions from the British forces stationed in Northern Ireland. The troops don't believe in the colonial role they are playing and the withdrawal lobby has gained strength.

In early June when the strike threatened to close the file on the worked out plans of the joint parties, the Conservative opposition was fearful that Harold Wilson's Labour government would succumb to pressure and withdraw the British troops from Ulster. The Labour Left began to voice the view that Ireland must be left to settle the Irish question. What could that mean in real terms? It could have meant a standard manoeuvre of decolonisation; the setting of a firm date for the withdrawal of troops, the release of internees and the creation of representative assembly to make a constitution which would guarantee minority rights, parliamentary rule and capitalism. Classical solutions can come too late. The Tories feared that the solution would not only initially cause a civil war and invite the intervention through Catholic solidarity of the Dublin government, but could later also pose the possibility of class unity between the Protestants and Catholic of the North.

#### SIGNS OF UNITY

Though signs of this potential unity have already emerged, it is by no means certain that the prejudices and fears of hundreds of years will melt away. In the history of Ulster there has been an alliance across class lines between the Protestant working class and the Protestant bourgeoisie which leads the Orange Order and for which the so-called leaders, Jas Paisley and William Craig, speak. The alliance has been partly based on the ownership of Northern Irish textiles by joint local and British capital and the provision of employment, livelihood and preferential treatment for the Protestant population. The post-War expansion of international capital has steadily eroded the material base of this tenuous alliance. The influx of this 'new' capital has brought in the cartels and alternative industry. It has also led to the

## LONDON

### Ulster's Workers Show the Way

Farrukh Dhondy

CRISES don't hang fire. Like fire-crackers, once the fuse is lit they fizzle or explode. Northern Ireland is unique in that for five years its crisis has been daily news in Britain. The settlement of the crisis of Ulster will be the settlement of the long-term political problem. It is a war and it isn't. It is a class war and it isn't. Governments have changed hands, a thousand civilians have been killed, almost three hundred soldiers of the British army have been killed, British cities have suffered bombings and this year the Houses of Parliament were bombed for the first time (apart from a stray German bomb during the Second World War) since Guy Fawkes' unsuccessful plot, and the historic Tower of London, a sort of innocuous symbol of tyranny has been damaged by explosion.

More important in political terms than the explosions, the unrest in Ulster has caused the first situation of dual power to exist in Europe since May 1968 in France, and in the British isles since the 1926 General Strike or even perhaps since the days of Cromwell. For two weeks in May and June this year, glorious or not depending on your standpoint, the Ulster Workers' Council took the government and the day-to-day running of the province into its control. It forced the resignation of the power-sharing assembly which was presided over by Brian Faulkner's Unionist Party and forced the British government to take the province under direct control. In Indian terms it would mean something akin to the toppling of a state government by industrial agitation and the declaration of Presidential Rule from Delhi after the troops had been sent in and had been found impotent. More than that, the Ulster

Workers' Council established it could run by the province by delegating duties to its own networks. It took over the supply of everything — food, power, fuel, orders. It set up barricades and made decisions about who went where and moved an armed wing onto the streets. Apart from withdrawing its labour, it conceived and executed the functions of power. The Protestant housewives ran the distribution and information centres during the strike. The Catholic areas were left to the jurisdiction of the Irish Republican Army (IRA) which organised the movement of fuel and supplies in these areas.

The strike added a new dimension to the politics of Northern Ireland. The least it did was split the bi-partisan front on British policy towards Ulster, and posed for the first time in potent terms the real probability of an independent Ulster. Since 1916, the independence of Northern Ireland has been a theoretical possibility, but has always been opposed by the 'loyalist' and 'Unionist' leadership of the Orange Protestant Order whose interests coincided with those of British capital in the province. Today the question of independence is being posed by an active working class. If the strike proved anything, it proved that workers withdrawing their labour and forming alternative structures of control in support of a political demand are finally in the strongest bargaining position that a state like Britain is susceptible to.

For over 60 years the Irish question has been presented as a dispute between a Protestant majority and a Catholic minority with the Catholic state of (southern) Ireland waiting in the wings. These have been real bargain-



search for higher productivity. The British government has promoted the influx of international capital and the passing away of control from the local capitalists and landlords. Southern Ireland has been affected in a parallel way. At the same time, both Northern and Southern Ireland have provided Britain with agricultural products and with immigrant labour for those sectors of the British economy which experience an indigenous labour shortage.

William Whitelaw's White Paper published at the end of 1972 for the Tory government stated that "the economy and the security of Northern and Southern Ireland are interdependent". So far, the two only share road and rail lines and a hydro-electric project. Obviously the White Paper was sketching a future in which capital would create political unity. But it did not mention that it is these same material conditions that may make possible unity between Catholic and Protestant workers and also bring to the forefront the idea of a break from Britain.

No one can claim that this is how the issue is presently seen. For the Protestants, the prospect of independence has so far meant the threat of a takeover by the Pope *via* the Papist South. For the Catholics, their cherished programme has been one of Irish unity based on religion, on race and on culture. Since the partition of Ireland in 1920, the IRA has carried on the battle with the British government and the rule of the Northern Protestants, relying on outlawed Republican organisations in the South to ensure an operational base.

The Protestants have had a rabidly right-wing leadership which has based its public perspective on loyalty to the monarchs of Britain, Union Jack waving, parades and practical discrimination — ingredients of a negatively defined programme. Their forces of terror and control have been largely the forces of their sub-state, the Royal Ulster Constabulary and their own brand of black-shirts, the B Specials. It was only after the awakening of the Catholic civil rights movement with a programme of equality in housing, employment and parliamentary representation, that the Specials were suppressed and the various Protestant underground organisations took their place.

Of these the Ulster Volunteer Force (UVF) is the oldest and was responsible this year for bombing cars in the heart of Dublin as a warning to Republican opinion. The Ulster Defence Association (UDA), the larger organisation of the two, has a combination of roles. As well as bombing Catholic

pubs and precincts, it has street-by-street organisations with a vaguely defined political platform of Protestant supremacy. Its contact with the rank-and-file Protestant worker gives it the courage of fairly radical convictions which horrify the traditional defenders of Protestant supremacy.

The British army offensive has been against the IRA, leaving the terrorists of the Protestant community largely alone. With the proliferation of organisations, political and military, the policy of British governments has been that of the pony soldiers of the wild West towards the Red Indians: "Wait till the dust settles and negotiate with the one who is left standing". Publicly the British governments have championed those formations they choose to call the "moderates". Amongst the Protestants, the Unionist Party of Brian Faulkner was entrusted with the leadership of the power-sharing coalition which the Tory government dreamt up. It shared power with the Catholic Social Democratic and Labour Party (SDLP), known in Catholic areas as "Stoop Down Lower Please".

#### INEFFECTIVE FORMULA

The coalition's overall brief was to work out the procedures of power-sharing, and it was to be given executive powers after it had formulated a mutually acceptable way of including itself and the Dublin government in a Council of Ireland. The formula was supposed to satisfy the Catholic demand for unity with the South and give the Protestants an executive majority in the North at the same time. This eventually ineffective compromise was worked out at Sunningdale and came to be known by that name.

The very process which made politicians acceptable around the Sunningdale table, began their process of alienation from those they were supposed to represent. The IRA came out firmly against any such agreement and so did the UVF and the UDA. In the subsequent election to Westminster in February this year, the Sunningdale formation of parties suffered severe defeat — warning enough of the mood of the population.

Resistance to Sunningdale finally came to a head in May. The Ulster Workers' Council was the full-grown child of this resistance. It came into being through the so-called 'spontaneous' process which theoreticians are so sceptical about. It was totally independent of the trade union leadership of Northern Ireland even though many of its leaders had experience of championing the cause of labour. The newly

aligned shop-floor and community forces found their way to new possibilities. The workers of Ulster in the power stations, in the docks, in transport and in the mills, stopped work. Each county community provided three members to an executive which came together on an *ad hoc* basis to run the strike. As a gesture to the old Orange Order, the traditional leaders were given representation but not control on the Council as they scrambled to jump on to the fast moving band-wagon.

The province was paralysed. Harold Wilson declined to use his troops in Ulster to break the strike and risk the armed conflict that was bound to follow. Instead, he appeared on nationwide television to challenge the strikers and their authority. Earlier he had sent in Len Murray, boss of the British Trades Union Council, to lead a march to call off the strike. Murray was stoned by women and children on the streets of Belfast. Wilson then gave in and Brian Faulkner's coalition resigned.

The strikers had won and their leaders spelt out what they had won. "We used to be so predictable", said Andy Tyrrie, a UDA politician, "We could see ourselves coming — the big parade, beat the drum, knock a few people about and then back again. Now I have introduced new tactics, avoiding conflict and shifting the barricades about till the army is exhausted. We've made a bloodless revolution, the types who want to kill everyone and burn everything are out". That is the voice of confidence, a new voice in Ulster. It speaks of *detente* with the IRA, of a new party of the labouring classes in Ulster which could unite the Catholics and Protestants as a class against the old style Unionist politicians. It has been said that the Algerian  *pieds noirs*  spoke in the same tones, but the Ulster workers make up a majority in their province and have an acute awareness of how much blood the 'religious' leadership has cost them. More than that, the IRA has been the strike for what it is — a manifestation of real power, and one it is willing to make an alliance with.

At a stroke the Ulster workers have given a rebuff to years of domination by the British state and have given birth to the tactics of workers' power and snatched the initiative from the dead-end politics of the Protestant right. The British government and pundits say they are still looking for a recipe for the future of Ireland. They had best look now, as do the people of Ulster, to the soup-kitchens of community power.